PAPER TRADE JOURNAL

VOL. 123, NO. 17 OCTOBER 24, 1946

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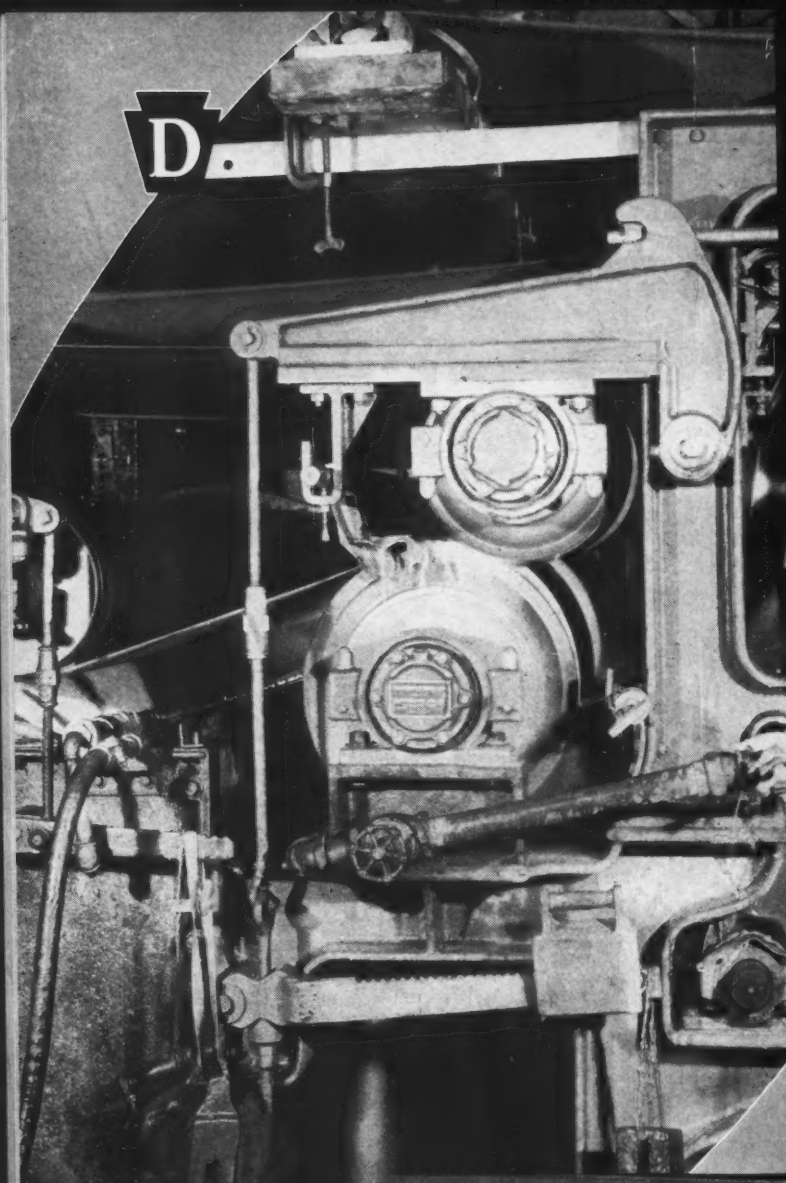
Hoosiers Still Want Newsprint Decontrol
Canada Counts Effect of Newsprint Rise
U. S. Envelope Sells Tissue Division



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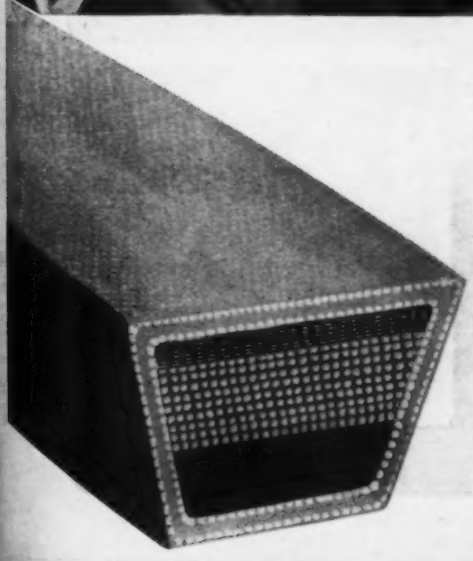

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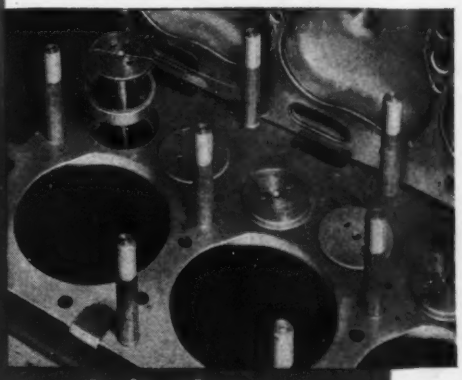

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Paper out of wood! The very idea gave the green light to America, a veritable land of trees and water. Paper mills mushroomed up along the rivers. First through New England, New York, Pennsylvania, then across the continent even to the far Northwest, moved men, money and machines to make the new paper.

Through the forests rang the sound of the woodsman's axe. Down swift streams logs went pouring to the pulping mills. The nation, bristling to build, to expand, create, to tell the world the sweet story of liberty, was stirred by the thought of cheap and plentiful paper. Now the printing press need never cease its roar. Plentiful paper had touched off a staggering cycle of industrial and educational expansion for America.

Paper—paper out of wood—had become the product most used by man.

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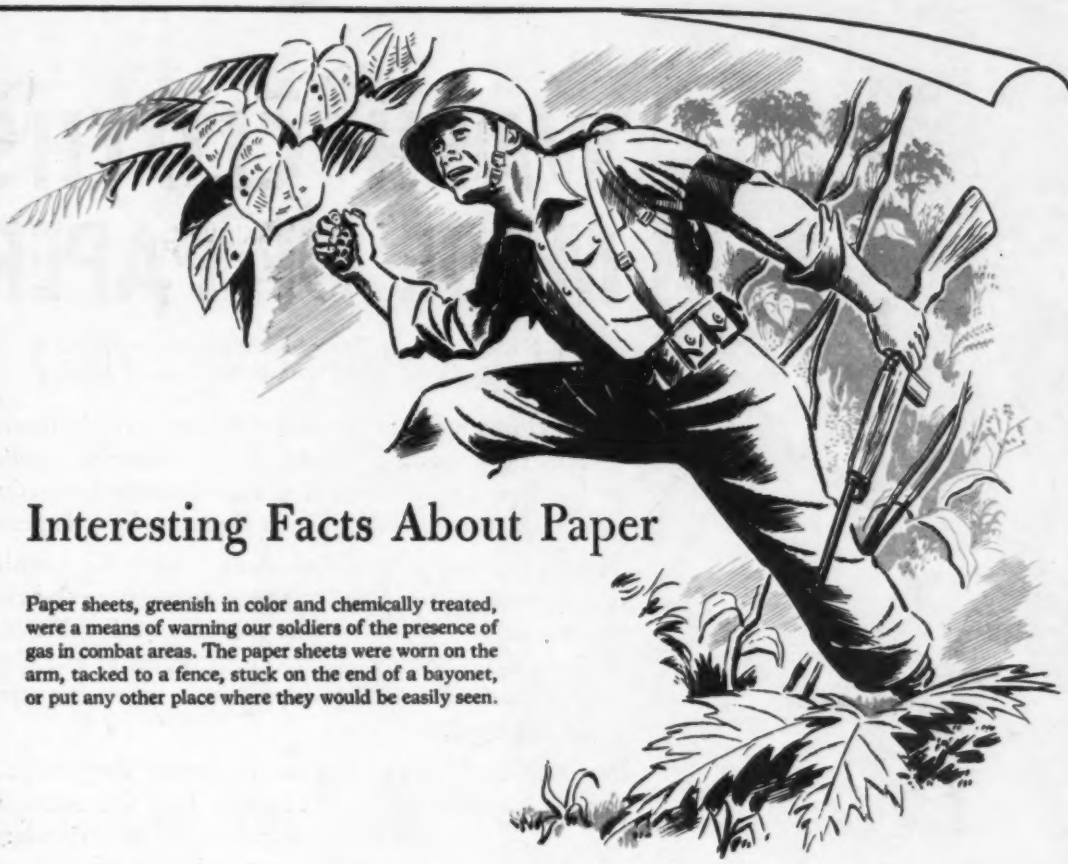

Interesting Facts About Paper

Paper sheets, greenish in color and chemically treated, were a means of warning our soldiers of the presence of gas in combat areas. The paper sheets were worn on the arm, tacked to a fence, stuck on the end of a bayonet, or put any other place where they would be easily seen.

Interesting Facts About Helmerco Blues

Helmerco Blues comprise an interesting group of tinting pigments known to papermakers everywhere for the blue-white perfection they bring to white bond, writing, book, ledger and other papers at minimum color cost.

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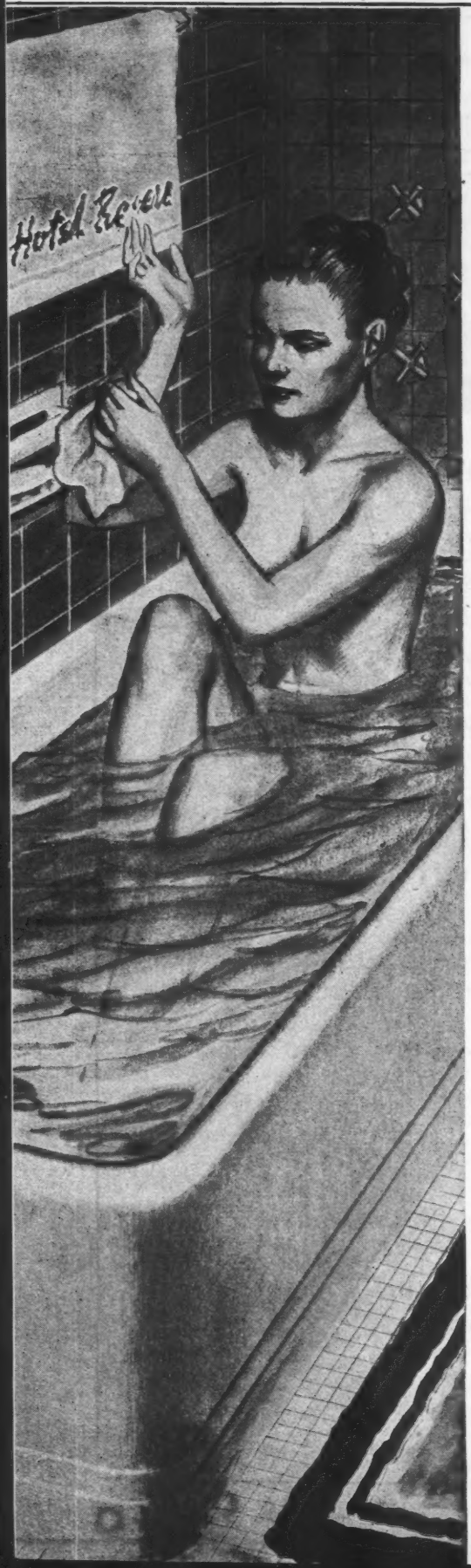

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Wash cloths made of paper are finding a ready market in America's leading hotels. Every room is supplied with soft and gentle wash cloths at a considerable reduction in overhead. And there is no laundering expense.

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Puseyjones Engineers will welcome the opportunity to work with you in solving production problems.

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Established 1848. Builders of Paper-Making Machinery
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PAPER TRADE JOURNAL
Vol. 123, No. 17 October 24, 1946
Title Reg. U. S. Pat. Off.

Tinker Finds Cause For Reassurance

CHICAGO—Assurances that the paper industry is not only making magnificent efforts, but actually is making progress in meeting the heavy demands upon its production facilities, were placed before the National Paper Trade Association last Saturday in the NPTA convention in this city. Without denying that demand is still ahead of supply, E. W. Tinker, executive secretary of the American Paper & Pulp Association, deplored the disturbing factor that is contributed to the market opinion by exaggerated assertions that are spread by the Government. He also analyzed for his audience the actually negligible amount of paper that is trickling into export markets at present, and showed that this factor might be disregarded as a cause for domestic shortages.

"Over the past several months," said Mr. Tinker, "one of the widely read government publications on pulp and paper and items appearing in trade magazines and newspapers have tended to exaggerate conditions as they actually exist with paper and paperboard supplies. Those assertions, by exaggerating shortages, have hindered what would otherwise be a steady pull in closing the gap between supply and demand. The result has been a further duplication of orders which in turn has been creating an inflated demand.

"However, despite those unrealistic appraisals and their unfortunate repercussions, an examination of the facts will go a long way toward showing that our industry is making a magnificent effort to meet the heavy demands placed upon it and is succeeding—succeeding because it has been able to meet and, so far, to overcome the many raw material problems which it has faced.

"Non-integrated paper mills have been relying very heavily upon wood pulp imports from overseas to keep their inventory position at a safe working level. In September the Office of Price Administration increased price ceilings on wood pulp, raising them about 10 percent. These latest pulp price revisions have a marked effect on future paper and paperboard production, because, being inadequate to cover currency revaluation, they seriously limit procurement of Swedish and possibly Canadian pulp. These two

(Continued on page 24)

Paper Trade Association Hears Wherry Laud Free Enterprise

G. E. CARPENTER
Presides at N.P.T.A. Fall Convention

CHICAGO—This city became the paper center of the country last week when the Fall convention of the National Paper Trade Association held the spotlight on October 17, 18 and 19 at the Edgewater Beach Hotel. Without a meeting of this kind for three years, because of wartime restrictions, the industry descended on Chicago in record numbers to determine the thinking of the industry on three major items—controls, production and the future marketing conditions of the paper trade. During the week, scores of meetings of allied groups and of paper companies were held with headquarters established not only in the Edgewater Beach but in loop hotels where hospitality was often coordinated with exhibits of the latest offerings to an expectant paper trade.

Perhaps two of the many fine speakers, Senator Wherry and E. W. Tinker, could be selected to offer some indication of the way the industry leans in these days of the waning strength of the Office of Price Administration. First speaker of the sessions which got under way on the morning of the 17th with President G. E. Carpenter presiding, was Senator Kenneth Wherry, Republican whip in the United States Senate. The vigorous exponent of free enterprise got plenty of encouragement from the audience when he declared that America must rid itself of the impediments of control and begin at once to let the normal forces of supply and demand and selectivity reign supreme. He got plenty of support for his proposals that the paper trade, having done a magnificent war time job, could do a better one for peace time America if pulp flowed into this country sans price controls and if mills, converters and all were permitted to judge their market without government paternalism. Clearly, it was a speech that reflected the industry's belief that controls should come off—and the more speedily the better.

Second speaker of the morning, scholarly James Cleary who represented the Committee for Economic Development, approached the subject from a different angle and clearly pointed out what the industry must do in the way of providing jobs if the system of free enterprise is going to

Stern Denies Interest In Donnacona Mills

PHILADELPHIA—Recently current reports in Canada that linked the name of J. David Stern, Philadelphia newspaper publisher with a change of ownership of the Donnacona Paper Company are a complete mystery to Mr. Stern. "None of my companies, nor I, have ever owned a share of Donnacona," he says, "nor have we any plans for owning any shares. I cannot but feel that my name is being used as a smoke screen."

Taylor Joins Crown-Zellerbach

SAN FRANCISCO—Kenneth I. Taylor, of Boston, Mass., who has joined the Crown Zellerbach Corporation as assistant to Vice-President Alexander R. Heron, in charge of Industrial and Public Relations, arrived in San Francisco last week to establish his headquarters and home. He will be joined later by Mrs. Taylor and a seven-year-old daughter, Mary Ann.

speedily get into a buy and sell, make and produce cycle to prove its capabilities. The speaker likewise outlined the necessity for careful expansion, for courageous approach to the job of constructive market development to insure productive employment in the country. He pointed to the record breaking job of the paper industry and was not slow in picking up the fact that new paper machines, new equipment and new ideas were characteristics of the trade's current expansion program.

Following the initial morning session, which was open to manufacturers and guests, NPTA's Fine Paper Division went into session with A. W. Towne, vice-president, in the chain. United States officialdom was represented on the program by two gentlemen from the Office of Price Administration who emphasized the importance of continuing the battle against inflation and of fighting for full speed production to this end. Perhaps of as much interest as any of the programs was the symposium on the outlook for fine papers participated in by J. R. Kimberly, Kimberly-Clark Corporation; H. A. Legge, Howard Paper Mills, Inc., A. C. Gilbert, Gilbert Paper Company and R. M. Beckwith of Crocker, Burbank Company. Each of the speakers reportedly indicated that the demand for paper would outweigh the supply for many months to come, but all pointed out the need for immediate study of potential markets, for getting all houses in order to be able to manufacture and distribute paper in the most economical way possible. A return to the buyers market was repeatedly referred to as a challenge and a certainty that the trade could not afford to overlook.

An ever-increasing necessity for closer collaboration between mill and merchant was emphasized here as it was later on in the report of the Merchants Advisory Committee.

Fine and Wrapping Paper divisions held a joint session on the morning of Friday, October 19, with five splendid speakers offering a variety of facts and figures to a most interested audience in the Grand Ball Room of the Edgewater Beach. Of these, E. W. Tinker, executive secretary of the American Paper & Pulp Association again took occasion to point out the pitfalls in rapid and sometimes unwise expansion of the productive capacity of the trade, pointed out the ease with which new ventures in the industry were financed and cautioned against a recurrence of that "profitless prosperity" which was an all too predominant characteristic of the industry less than a decade ago. Other speakers were C. F. Diskin, Chief Counsel of the Paper Branch of OPA; A. C. Remley, Nekoosa-Edwards Paper Company and R. A. Maish, Dennison Manufacturing Company. A report on the Traffic Committee work, given by R. W. Campbell, chairman, preceded a report on Veterans Training which showed that the industry was alert to the possibilities of employing veterans in productive jobs not only to benefit the trade but to materially enhance its public relations program—a program, incidentally, referred to many times as a post-war "must" if the industry is to receive the recognition it should have.

The Wrapping Paper division, with R. G. Luff, vice-president, presiding, met on the afternoon of the 18th to hear reports of W. G. Leathers, Secretary and C. J. Slicklen, chairman of the Merchants Advisory Committee. Speakers at the session included O. P. Carter, Gaylord Container Corporation; W. J. Servotte, Bay West Paper Company; R. F. Herrlinger, Gummed Products Company and J. W. Minton, Graham Paper Company.

The various Governing Committees and the N.P.T.A. board of directors met later in the day with breakfast conferences and meetings with affiliated groups slated to precede the semi-annual meeting at 10 A.M. on October 19 when reports were given and J. K. Javits, Counsel of the N.P.T.A. spoke.

Sir Walter Would Have U. N. Take Up Newsprint Shortage

NEW YORK — The United Nations should take up soon the problem of the worldwide shortage of newsprint, according to Sir Walter Layton, chairman of the rationing committee of the Newsprint Supply Company of Great Britain.

Sir Walter is chairman of The News Chronicle of London, The London Star and The Economist and a director of the Reuters news agency. He pointed out in an interview here this week that the Assembly had a commission to consider the freedom of the press and access to news as a matter of international concern. He said its agenda should include a study of the physical material by which ideas were conveyed "if democracy is really to penetrate into the dark places of the world."

The visiting executive has prepared a pamphlet titled "Newsprint, a Problem for Democracy." This shows that world production of newsprint has decreased from 8,159,000 short tons before the war to 6,803,000 as of September, 1946. During the same period consumption in the United States and Canada has increased considerably, while in the United Kingdom and the remainder of the world it has decreased heavily.

To a visitor from abroad, Sir Walter said, American complaints of the lack of supplies sounded strange and the United States seemed like "a land of superabundance" compared with the other parts of the world, where there was "a famine of newsprint."

Although the United States long had been the world's greatest consumer of newsprint, he added, its consumption had risen from 43 per cent of the world's supply in 1938 to 66 per cent now. This, he said, was "because America is consuming more than before the war, whereas other countries have very much less."

Hoosiers Still Want Newsprint Decontrol

INDIANAPOLIS, Ind. — Local publishers are somewhat disgruntled over the $10 a ton rise in newsprint, since they wanted all controls removed. Just what the increase will mean in the retail price of papers the publishers refused to predict. All local newspapers are selling now for five cents each and the Sunday paper is retailing for 15 cents. The publishers will be somewhat mollified if they are able to secure enough paper to care for the advertising that is being refused each week.

Demand for all other lines of paper continued heavy last week and supplies were short as usual. The supplies of kraft seem particularly short as the week ended. The jobbers say it is impossible to nearly fill orders for wrapping paper, bags, paper cups and such items. The prices, of course, are strong. Tissues also were badly needed in this territory. In fact tissues seem almost as short as meat. Women queue up at retail and department stores when there is a supply on hand and most of them are turned away empty handed.

Jobbers now are noticing the shortage in building paper and roofing. Building increases have been noted each week and the fairly large supplies the jobbers had built up during the war years have dwindled almost to the vanishing point. With the coming of severe weather, building will be halted to some extent and it may be possible the situation will change for the better before the coming of spring.

Rag demand also continued heavy with local stocks low. New cuttings seem to be most wanted, although offerings of all other grades were disposed of easily with prices firm.

Waste paper demand also was strong. Coupled with all other troubles of the trade, the wastepaper dealers now find themselves short of baling wire. The shortage has not been felt so much here, but reports from other sections of the state show a severe shortage.

M. & O. Reemploys More Than Left

MINNEAPOLIS—By hiring ex-service men whenever possible Minnesota and Ontario Paper Company this month established a new high in veteran employment. Records of company operations in the United States and Canada show that 1,484 returned veterans had been employed by the company up to October 1. Service flags show 1,277 left for service. There are 48 gold stars in the flag.

Early this summer the company passed the goal of employing as many returned men as had left for service. These figures include operations and offices at Minneapolis and International Falls, Minnesota, and Kenora and Fort Frances, Ontario.

The

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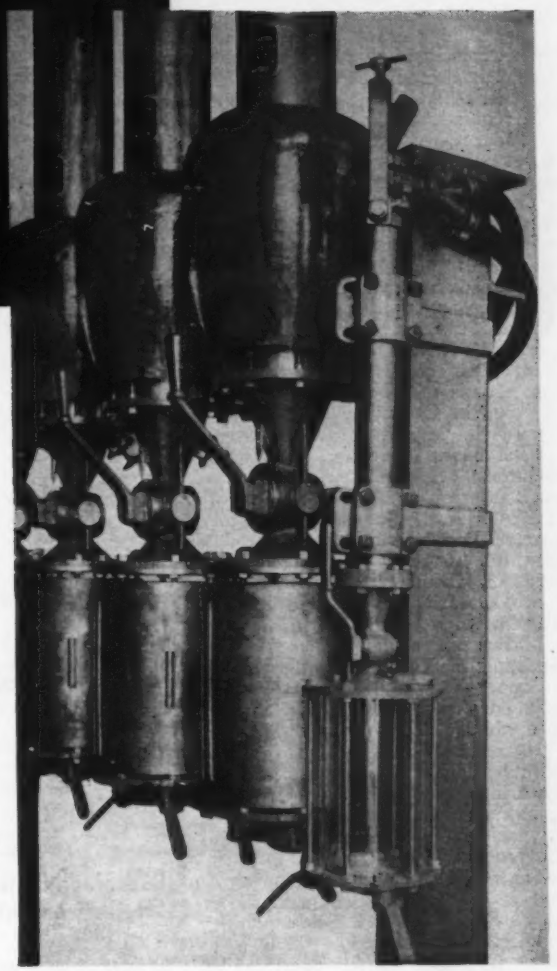
Sure Does a Job on Paper Dirt



Out of Your Stock Ahead of the Paper Machine

The Bird Dirtec employs the pressure drop principle to detour all kinds of dirt out of your stock. It does the job far more effectively and thoroughly and it's easy and inexpensive to install and run. No moving parts. A single, compact unit.

Out of Your Screen Tailings

The Dirtec not only does a better job of separating the dirt from the fibres with virtually no fibre loss but it handles a much greater volume of tailings, improving screening efficiency. It takes up only a small fraction of the space required by auxiliary screens.

Ask us to show you how neatly, successfully and economically it fits into your dirt removal set-up.

BIRD MACHINE COMPANY

SOUTH WALPOLE • MASSACHUSETTS

New Marathon Mill Begins Production

WAUSAU, Wis. — D. C. Everest, president and general manager of Marathon Corporation, last week reported completion of the new bleached sulphate pulp mill at Marathon, Ontario, on the northern shore of Lake Superior. Construction was started in the spring of 1944, and September 20, this year, marked the first day of pulp production at the new mill, when the first digester blow of unbleached sulphate pulp was made. Production will increase in volume, and ultimately is expected to reach the 300-ton mill capacity of high grade bleached sulphate pulp, principally for the Rothschild mill, but also for the converting plant at Menasha, Wis., and Marathon's other plants.

Under a $15,000,000 construction program, the Marathon Corporation, the parent company, has erected numerous buildings on the townsite, many more are under construction and others are scheduled in the project, said to be one of the largest of its kind in the Canadian province.

Building operations have been going forward through the Marathon Corporation's subsidiary, the Marathon Paper Mills of Canada, Ltd., which also directs the company's cutting operations in Canada. This company is headed by Mr. Everest, as chairman of the board, and John Stevens, Jr., vice-president of Marathon Corporation, as president. The mill and townsite of Marathon are about 180 miles east of Port Arthur, Ontario, on the main line of the Canadian Pacific Railway, and about 600 miles west of Toronto, Ontario. The station formerly was known as Peninsula, Ontario.

Marathon's prime purpose in constructing the Canadian mill is to give its paper mills and converting plants in the United States, notably those at Rothschild, Wausau and Menasha, Wis., a dependable source of high quality sulphate pulp for use in manufacturing paper and paperboard packaging, principally packaging for foods, in which line the corporation is a leading producer.

The wood supply for the new pulp mill is cut from the Canadian company's Pic river and Algoma township concessions in Ontario, which is an area of about 2,700 square miles. Spruce, jackpine and other woods suitable for sulphate pulp-making are driven down the Pic river to Lake Superior at a point about 10 miles east of the mill. It is towed from there by boom to Peninsular harbor, at the mill site, and taken from the water to the slasher and barkers. From the extensive stockpiles along the bay from the wood is automatically conveyed by conveyor belts to the chip building and from there to the chip storage.

The mill building is 660 by 188 feet. The pulp storage building, which adjoins it, is 440 by 204 feet, and it leads to the 480-foot lake-front dock. The entire pulp-making operation is housed under one roof, making possible the highest operating efficiency. General plant offices and the laboratory are housed in the mill building. The plant dock is long enough to accommodate the largest freighters on the Great Lakes.

The mill building, of concrete, steel and corrugated asbestos siding, houses seven pulp digesters, each of 3,260 cubic feet capacity. The Foundation Company of Canada is the general contractor for the Marathon project and the Stone and Webster Engineering Corporation is the consulting engineer and construction supervisor.

Indications are that the town of Marathon, Ontario, will one day have a population of about 2,500 persons. Plans call for erection of 245 dwelling units, including single family, two and four-family homes and dormitories, many units of which are now in use or ready for occupancy.

Among the structures already in use are a modern hotel, the Everest; a three-story hospital, completely staffed; a school, from kindergarten to the tenth grade; a bank; a department store, and a new railroad station. A fire and police station, a movie theater and recreation center are under construction.

Mr. Everest and other high officials of Marathon have had the operation under consideration for years. The main purpose, as has been said, is to provide a larger source of pulp for mills in the United States.

In addition to Mr. Everest and Mr. Stevens, officials of Marathon include: Leo E. Croy, executive vice-president; Roy J. Sumd, vice-president in charge of manufacturing; Allen Abrams, vice-president, and Donal A. Snyder, director of sales.

Other officers of Marathon Paper Mills of Canada, Ltd., are: Niles M. Anderson, vice-president for the mill division; H. P. Klinestiver, vice-president for the woodlands division, and F. F. Johnson, secretary-treasurer. The mill operating executives include James Ruck, operating manager; Grant Ross, chief engineer, and Dr. F. Kraft, technical director.

Bud Hall Named to Post On Retirement Group

CAMAS, Wash.—Bud Hall has been appointed as a member of the Crown Zellerbach Retirement Plan Committee, filling the vacancy caused by resignation of San Runyon. Mr. Hall's appointment was made on recommendation of representatives of the principal unions representing the majority of Crown Zellerbach employes. He has for three years past been vice-president of the Camas local of the Pulp & Sulphite Union and also chairman of the standing committee there for seven years. For several years Mr. Hall served as a Camas councilman and has been active in community affairs in his home town.

Paper Goods Opens New Chicago Plant

CHICAGO — The American Paper Goods Company last week celebrated the completion of its new plant at 4711 Foster Avenue, the formal opening being held on Thursday, October 17. C. Oscar Edgerly, vice-president and general manager of the western division, stated that the new plant had cost one and a half million dollars and would be of a size sufficient to permit more than doubling the employment in Chicago. He said the company eventually expects to increase its production of paper cups and containers, specialty bags, envelopes and other paper items by nearly three and a half times. The plant has 120,000 square feet of floor space and 18 percent more production line area than in its previous quarters at 1327 W. Washington Boulevard. The one story building is designed to permit a larger utilization of floor space because of the absense of elevators and stairways and a wider spacing of column supports.

Proud of the sales opportunities opened up by the completion of the plant, American Paper Goods is equally pleased with the modernity and usefulness of the building itself. Designed by the Austin Company, it features all modern trends in industrial design and presents the company with 99 percent of the 120,000 square feet of floor space as usable for productive purposes compared to only 82 percent of the 102,000 square feet in the former building. Thus, an increase of only 18 percent in the overall size of the factory allows the company to more than double its working force while production will be increased by almost three and a half times.

Fletcher Extends Its Insurance Plan

ALPENA, Mich.—A rearrangement of its group insurance program has been completed by the Fletcher Paper Company. The new plan adds increased hospitalization benefits for employes and dependents for whom they are insured without additional cost to personnel.

The plan is being underwritten by the Metropolitan Life Insurance Company on a cooperative basis whereby the employes contribute fixed amounts and the employer bears the balance.

As the plan is now constituted, employes and the dependents for whom they are insured will receive up to $150 and $112.50 respectively, for surgical operations; payment of $6 a day will be made when either is hospitalized. Also included in the group plan is visiting nurse care which is offered employes residing in areas where this service is available. Supplementing this is the distribution of pamphlets on health conservation and accident prevention.

For modern packaging . . . Geon-coated paper

Complete color range—superior aging—heat sealability—food, chemical and water resistant

THESE are just a few of the features that make coatings of GEON—or unsupported film of GEON—so valuable in the packaging field. In addition, coatings and film of GEON resist aging, sunlight, air, water, abrasion, oils, acids, and many other normally destructive factors. Coatings of GEON on paper increase tear strength and wet strength. They may be smooth surfaced or embossed, dull or glossy. As wrappings or liners, GEON-coated paper gives long life, complete protection.

The swatches in the picture are unusual in still another respect. They were coated with GEON latex, a new water dispersion that offers decided processing advantages. With GEON latex there are no explosive, toxic solvent fumes to contend with. Nor is there any need for cumbersome, expensive solvent recovery systems because no solvent is used.

We make no finished products of GEON. However, our development staff will be glad to work with you on any special problems. For more information, please write Dept. M-11. B. F. Goodrich Chemical Company, 324 Rose Bldg., Cleveland 15, Ohio.

Geon
Polyvinyl Materials

B. F. Goodrich Chemical Company

A DIVISION OF THE B. F. GOODRICH COMPANY

Collins Reports on Tree Farm Growth

WASHINGTON — Extension of the Keep America Green Program to six new states and the addition of more than a million acres to the national tree farm area, were listed as two major accomplishments of the year in the fiscal report of the American Forest Products Industries, Inc., at its annual meeting of trustees, October 12. Presented by Director Chapin Collins, and covering all phases of the organization's activities for the year, the report showed substantial progress in the Trees for America program, inaugurated last March, as well as a broadening policy of assistance to individual states in the solution of forest problems. AFPI foresters have visited 39 forested states during the past twelve months, Collins stated, assisting with the organization of local action committees.

"Through the leadership of state and regional groups, three states—Florida, Wisconsin and Ohio — with 342,000 tree-growing acres have joined the Tree Farm Program," Collins said. "Additional tree farms in other member states have swelled the total under certification to 12,166,494 acres."

Collins named Indiana, Idaho, Arkansas, Missouri, California and Florida as the six states launching Keep Green programs this year and added that the groundwork has been laid for the organization of sponsoring committees in six additional states.

AFPI's nationwide educational program was continued in all of its phases, with more than two million persons seeing the motion picture, Trees For Tomorrow, the report stated. More than 33,000 schools received AFPI literature and a new publication for class room use covering American forest history, forestry, wood utilization and the story of the forest industries was published.

United States Envelope Sells Tissue Division

SPRINGFIELD, Mass. — Sale of the Morgan Paper Company Division, at Lititz, Pennsylvania, was reported this week by Eldon V. Johnson, president of the United States Envelope Company. Included in the transaction are the paper mill, as well as the toilet tissue and paper towel converting plant.

The purchasers, who took possession on October 17, have formed a new company which will be known as the Morgan Paper Company, Incorporated. They will have no affiliation or connection with the former Morgan Paper Company Division or the United States Envelope Company.

Robert J. Black, who has been manager of the Morgan Division, will be connected with the new company as executive vice-president and general manager.

R. H. R. YOUNG
Heads Pacific Mills Manufacturing

Pacific Mills Advances Young and Locke

OCEAN FALLS, B. C.—Appointment of R. H. R. Young as manager in charge of manufacturing for Pacific Mills Limited was made public last week by P. E. Cooper, president of the company. Mr. Young has also been appointed manager of Canadian Boxes Limited, a subsidiary of Pacific Mills.

Mr. Young was born in Vancouver in 1902 and obtained his early schooling at King George High School. After graduating from high school, he worked for the Rainy River Pulp and Paper Company at Port Mellon and the Whalen Pulp and Paper Company at Swanson Bay. In 1922 he started work with Pacific Mills on the paper machines at Ocean Falls and worked there in his vacations while attending Oregon State College, where he obtained his degree of Bachelor of Science in Mechanical Engineering. After graduation, he attended the Northwest College of Law.

After graduating he worked in the West Linn plant of the Crown Willamette Paper Company; then assistant to the manager at the Lebanon plant and later returned to West Linn as assistant to the manager and assistant manager. In 1935 he returned to Ocean Falls as assistant manager. In 1941, he was promoted to resident manager and has held this position since.

William E. Locke, recently appointed assistant resident manager, has received further promotion to the position of resident manager. Mr. Locke graduated from the University of British Columbia in 1930 with a degree in Mechanical Engineering. In 1934 he joined Pacific Mills and held the position of plant engineer from 1940 until his recent appointment.

Newsprint Tightness Causes ANPA Warning

NEW YORK — Daily newspapers report to the American Newspaper Publishers Association that stocks of newsprint paper on hand were 34 days supply at the end of September 1946, a decrease of three days supply compared with 37 days supply at the end of August 1946. This 34 days supply at the end of September 1946 compares with 44 days at the end of September 1945; 63 days at the end of September 1944; 56 days at the end of September 1943 and 49 days at the end of September 1941.

Daily newspapers reporting to the ANPA consumed 268,387 tons of newsprint paper in September 1946, compared with 213,294 tons in 1945 and 239,098 tons in 1941. This was an increase in September 1946 over September 1945 of 25.8 percent and an increase of 12.2 percent over September of 1941 which was the base year for calculating allowable use by newspapers under former WPB Order L-240.

The total estimated newsprint consumption in the United States for September 1946 is 378,010 tons which includes all kinds of uses of newsprint paper. For the first nine months of 1946 it is estimated to be 3,187,717 tons.

During the first nine months of 1946 the reporting newspapers used, 2,263,279 tons of newsprint, an increase of 28.8 percent over the first nine months of 1945 and an increase of 9.4 percent over the first nine months of 1941.

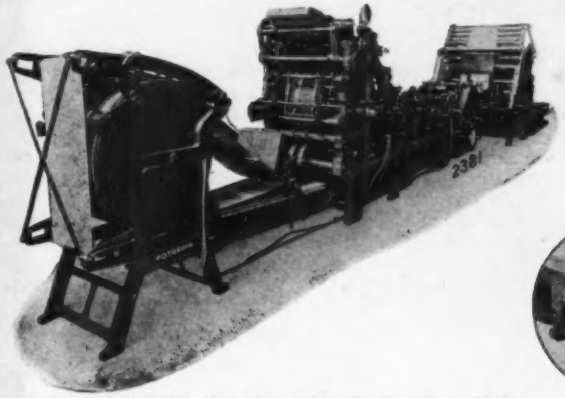
The ANPA reports that it is receiving disquieting reports of some newspapers being cut off entirely from a newsprint source at the end of this year. Some are because of expirations of contracts which are not being renewed but most because of merchants or jobbers supplying comparatively small users having their mill connections cut off by mills not renewing contracts or giving notice of not continuing supply on same basis as this and the war years.

The ANPA recognizes that each instance has a history all its own and no generalities may be a complete answer. There were times when mills sold newsprint to any one most anywhere but now a form of selective selling is in effect.

No bona fide newspaper the association declares, can be allowed to suspend publication for lack of newsprint and the ANPA expresses the hope now that all mills in the United States, Canada and Newfoundland will carefully check their own situation to be certain that they do their part in preserving a steady flow of newsprint so that all newspapers may continue to publish.

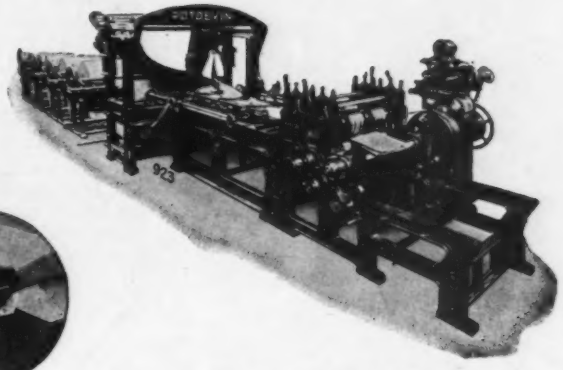
"There is not enough newsprint for every publication to have all it wants but there is enough to see that no newspaper is without any."

POTDEVIN
MULTIWALL BAG MACHINERY



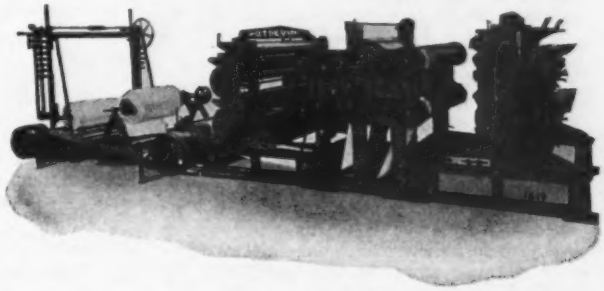
PMC 2381 POTDEVIN Model 87 multi-wall (4 wall) multi-size SOS bag machine for very large self-opening-square bags, equipped with POTDEVIN patented, double differential compensator and "electric eye" register control mechanisms for positioning previously printed outside web. Patented features produce sift-proof carbon-black bags.

PMC 2350 part of valver used on sewed-end bags.

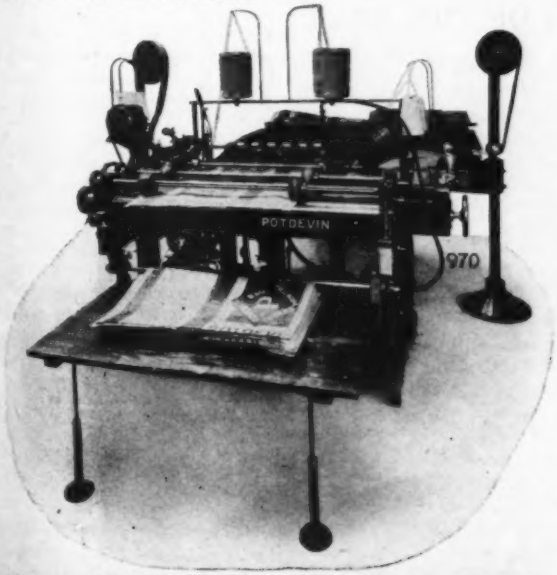


PMC 923 POTDEVIN Model 62 multi-wall cement bag tuber with valve cut-out. Provides for converting pre-printed outer web. Tubes produced hereon are subsequently converted into double-end sewed cement and similar printed multi-wall bags. Tuber is equipped with "flying splicers."

POTDEVIN furnishes bag plants with full equipment for making multi-wall valve-end bags with both ends sewed or both ends pasted, as well as open-mouthed bags with self-opening-square type, sack type or sewed-end type bottoms.



PMC 1619 POTDEVIN Model 463 multi-color multilength oil-ink, rubber plate cement bag paper press, with rewind, for printing web widths up to 74"



PMC 970 POTDEVIN Model 162 sewing machine for sewing selvage on both ends of previously valved multi-wall tubes forming complete cement, fertilizer, chemical, feed and similar bags for bulk products.

POTDEVIN equipment is obtainable for making single-wall bags, "duplex" lined bags, or multi-wall (3, 4, 5 or 6-wall) bags, made entirely of plain (unprinted) paper, or having the outer roll printed during the bag making operation or separately in roll-to-roll form previously, the bag machine being equipped with a patented double-differential compensator and electric eye for full-speed production.

POTDEVIN equips cement bag plants complete with printing press, tuber, valvers, sewers and conveyor beltings ready to operate.

POTDEVIN MACHINE CO.

1223 38th Street — **Established 1893**
Brooklyn 18, N. Y. — **Tel. Windsor 6-1700**

District Representative: Arthur Prausnitz (Tel. Wabash 8022), 122 S. Michigan Blvd., Chicago.

Designers, patentees and builders of printing presses, paper waxing, saturating, varnishing and gluing machinery, also of paper bag machinery in world-wide use.

Canada Counts Effect Of Newsprint Rise

TORONTO — Following the recent boost in the price of newsprint in the United States there has been a general rise of $10 a ton in the Canadian domestic market, which has set paper officials and shareholders to figuring what this all means in net profits available for dividends. It is estimated that the new price of $84 a ton in the U. S. will mean the equivalent of $40 million in annual gross earnings and perhaps a total net income to Canadian newsprint mills of $10 million.

The good news was immediately reflected in the stock market where the general list continued to decline while the index of ten paper stocks at midweek showed a better than nine-point recovery. Even so, Canadian paper stocks did not quite realize expectations, and by Saturday had lost, on the average 1.70 of the 27.07 points gained in recent weeks.

Conservative analysts believe the increase will mean a minimum of $2 per ton extra net earnings for the average newsprint mill and in terms of common share earnings would mean nearly $1 a share on Abitibi common. Yet after showing fair gains all week, by Friday paper stocks began to slip on the Toronto market. These stocks included Abitibi, Consolidated, International, Donnaconna and M. & O.

The listless manner in which newsprint securities reacted to the announcements of price increases is attributed by some observers to the fact that a bear market generally takes no account of company earning power. Nevertheless, newsprint companies are now earning more than the most optimistic would have thought possible a year ago. Three price increases since the beginning of the year have put the price of newsprint on a more reasonable basis considering the cost of producing it. Yet newsprint securities continue to sell substantially below present earning power.

The possibility of the demand for newsprint declining seems remote. Advertising lineage continues upward and as long as that condition exists there should be a corresponding increase in demand for newsprint.

Admitting the greatly increased costs of production, newsprint prices are now $17 a ton, or better than twenty-five percent, higher than they were at the opening of the year. Even allowing for the anticipated increase in freight rates, based on current levels of costs and capacity operating levels, it is estimated that at least $5 a ton will be available for dividend distribution next year. Judging from the present rate of shipments Canadian newsprint will this year establish an all-time high of around four million tons, which is about a million tons better than before the recent war. They entered the fourth quarter of 1946 assured that records would be broken in both poduction and shipments. Mill production for the first nine months totalled 3,060,071 tons and will likely exceed four million tons for the full year, even if operating ratios should decline to ninety percent of capacity for the balance of the year; while if they continue to operate at their present level of ninety-nine percent, production will exceed 4.1 million tons. Since there is an insatiable demand for their products Canadian newsprint mills should have little difficulty in selling at least four million tons this year.

Rayonier Earnings Trend Up

NEW YORK—Rayonier Incorporated reports that it contemplates changing its fiscal year ending April 30 to a calendar year, which will coincide more closely with the company's natural business year. On the calendar basis, net profit for the quarter ended September 30, 1946 is estimated at 53 cents per common share, of which 25 cents was earned during the month of September, indicating an upward trend in the company's earnings.

West Virginia Names Kavanaugh To be Assistant Treasurer

NEW YORK CITY—The election of Lawrence J. Kavanagh, as an assistant treasurer was announced today by West Virginia Pulp and Paper Company. Kavanagh began working for the company as an office boy in 1920 following graduation from St. John's Preparatory School, Brooklyn, and has served at different times as manager of the billing department, cashier in the Industrial Chemicals Division, internal auditor, and assistant to the treasurer.

CPA Approves Plant Construction at Palmer

PALMER, N. Y. — Approval of the erection of a new factory here by the International Paper Co. has been given by the Civilian Production Administration and this project is to be rushed to completion. The approval is the largest granted in this area and is reported to call for an expenditure of $388,000. The company has been seeking help for some time past and the new plant is expected to permit a substantial increase in production.

Finch Pruyn Adjusts Wage Rates

GLENS FALLS, N. Y. — A general wage increase of five cents an hour has been granted to all employes of Finch, Pruyn & Company following negotiations with labor leaders. The firm declares that the increase was granted as an amendment to the wage contract which expires next year.

FINANCIAL RECORD OF THE WEEK

New York Stock Exchange

High, Low and Last for Week Ending October 19, 1946

STOCKS

	High	Low	Last
A.P.W.	5⅝	5¼	5¼
Armstrong Cork Co.	47	44¼	46¾
Celotex Corp.	30	27⅛	27⅜
Certain-Teed Products Corp.	18⅞	16½	17⅝
Certain-Teed Products Corp., pf.	....	....	....
Champion Paper & Fibre Co.	25¼	23⅛	24¼
Champion Paper & Fibre Co., pf.	109½	109½	109½
Congoleum Nairn Co.	28	26¼	26½
Container Corp. of America	44¼	41	42
Continental-Diamond Fibre Co.	10⅜	9¾	9¾
Crown-Zellerbach Co.	30⅝	27¾	28⅝
Crown-Zellerbach Co., pf.	106¾	105¾	106⅝
Dixie Cup Co.	34½	32½	33
Dixie Cup Co.-A	54	52¼	53
Flintkote Co.	30⅞	27⅝	28¼
Flintkote Co., pf.	107¼	107¼	107¼
Robert Gair	8¼	7⅜	7¾
Robert Gair, pf.	19¼	19	19¼
International Paper Co.	45⅛	42¼	42¾
International Paper Co., pf.	98¾	95⅜	98¾
Johns-Manville Corp.	132	129	129
Johns-Manville Corp., pf.	....	....	....
Kimberly-Clark Corp.	25½	24	24½
Mac Andrews & Forbes	34½	32¾	34
Mac Andrews & Forbes, pf.	....	....	....
Masonite Corp.	55	49½	51
Mead Corp.	22⅞	20¼	21⅝
Mead Corp., pf. 4¼	106	106	106
Mead Corp., pf. 2	49	47¼	48
National Container Corp.	32¼	29¾	30¼
Paraffine Companies, Inc.	64½	62	62
Paraffine Companies, Inc., pf.	107	107	107
Rayonier, Inc.	19⅞	17¾	19
Rayonier, Inc., pf.	35½	34½	35⅜
Ruberoid Co.	49½	45½	45½
Scott Paper Co.	48½	44⅞	48
Scott Paper Co., pf.	102	102	102
Sutherland Paper Co.	41½	40½	41⅛
Union Bag & Paper Corp.	30¼	27½	28
United Paperboard Co.	11⅜	10¼	11¼
U. S. Gypsum Co.	111½	108	108
U. S. Gypsum Co., pf.	....	....	....
West Virginia Pulp & Paper Co.	41½	39	39¾
West Virginia Pulp & Paper Co., pf.	....	....	....

BONDS

Abitibi Pulp & Paper Co. 5s '53	....	....	....
Celotex Corp. 3¾s '60	....	....	....
Certain-Teed Products Corp. 5½s '53	....	....	....
Champion Paper & Fibre Co 3s '65	103	102⅛	103
International Paper Co. 5s '47	....	....	....
Mead Corp. 3s '66	....	....	....

New York Curb Exchange

High, Low and Last for Week Ending October 19, 1946

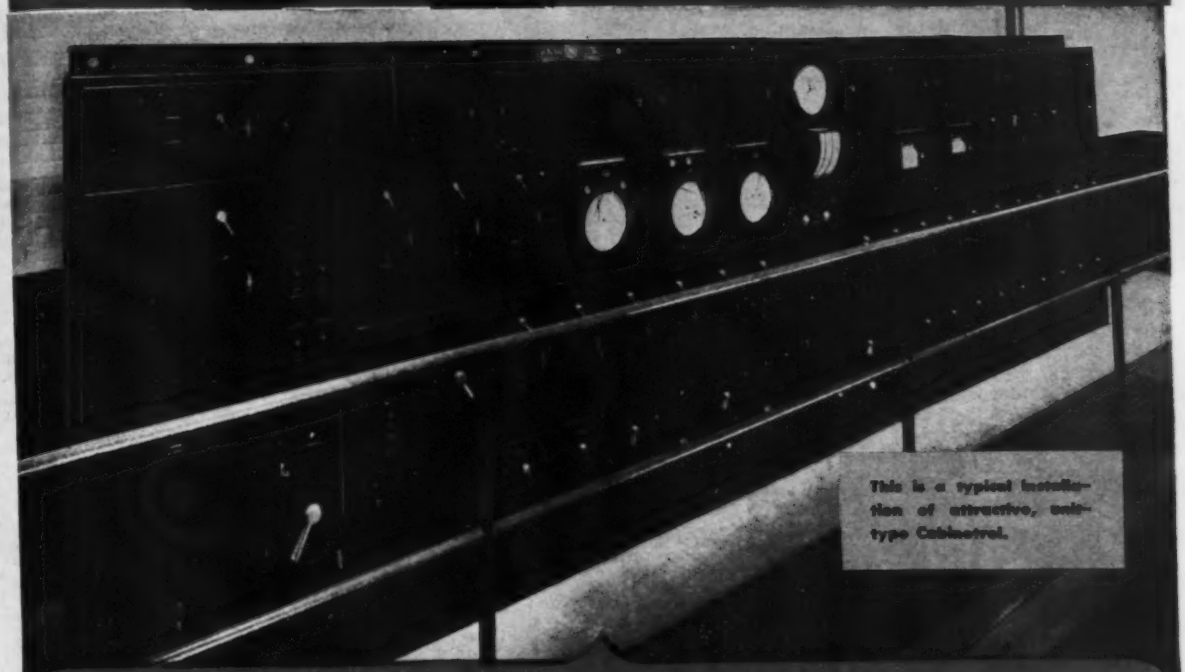
STOCKS

	High	Low	Last
Great Northern Paper Co.	41¾	40	41¾
Hummel-Ross Fibre Corp.	19⅞	15¾	19¾
St. Regis Paper Co.	10⅝	9¾	10⅝
Taggart Corp.	8	7½	7½

BONDS

American Writing Paper Co. 6s '61	....	....	....

HODGE-PODGE CONTROL IS EXPENSIVE!



Trim, Modern CABINETROL Cuts Installation Time and Cost

Rambling, space-taking racks are a thing of the past. Control in the *modern* paper mill is compact, centralized G-E Cabinetrol. It's attractive in design, safe to operate, and it costs no more!

Cabinetrol saves installation time and expense because it's a single, self-supporting unit. No cumbersome frames—no cluttered walls. Just one attractive, all-metal unit that will greatly enhance the appearance of your mill.

The savings in installation cost that you get with Cabinetrol usually far outweigh its higher original cost. Only two operations are necessary—placing the unit in the designated location and connecting external power, motor, and control leads.

IT'S PRE-ENGINEERED

Cabinetrol is based on the use of standard enclosures equipped with the right combination of standard control devices. Each unit is pre-engineered to meet your specific requirements. All starters and accessory equipment necessary to your application are incorporated in the Cabinetrol unit before it is shipped.

PROTECTS YOUR OPERATORS

Because metal-enclosed Cabinetrol is completely deadfront, it offers your operators and servicemen maximum protection. Each motor control is installed in an individual sheet-steel compartment with an interlocking door. Operating mechanisms for motor-circuit switches and air circuit-breakers are available from the front of the panel.

LET US HELP YOU equip your plant with co-ordinated control. We'll be glad to work with you now—to provide a Cabinetrol system specially engineered for your plant—and, if you desire, to help you fit Cabinetrol into your over-all plans.

If you'd like more facts about Cabinetrol ask for Bulletin GEA-3856. *Apparatus Dept., General Electric Company, Schenectady 5, N. Y.*

G-E INDUSTRIAL CONTROL

GENERAL ELECTRIC

Woods Strike Limits Ontario Pulp Output

TORONTO—A strike of woods workers in Northern Ontario is presently giving some difficulty and pulpwood cut is restricted, but it is not anticipated that the trouble will be allowed to continue long. According to Bruce Magnuson, secretary of the Lumber and Sawmill Workers' union in Timmins, the strike has cut operations by 12,000 cords a day. From Port Arthur to Hearst and in some small camps in the Timmins and Kirkland Lake district there are said to be about eight thousand men on strike.

The union is asking for recognition and a $5 daily minimum with board. According to a report from Ontario government sources the strike is costing the provincial government $18,000 a day in the loss of revenue from fees. A company statement claims that the union has not made its demands known to the operators and the provincial labor department, while the union secretary claims that a meeting was held in Port Arthur in July at which a labor department official and representatives of the operators were present.

Several costly and prolonged strikes have recently been settled in Ontario and there is a disposition on the part of government officials to get the labor situation squared away as soon as possible, which leads to the hope that the strike in the lumber camps will be short.

Holyoke Wire Offers Five-Cent Increase

HOLYOKE, Mass.—Negotiations in the Holyoke Wire and Cable month-long strike in which 200 employes, represented by the International Brotherhood of Electrical Workers, AFL, are asking for wage increases and paid holidays, are still bogged down. The company serves Holyoke paper mills.

Arthur Houle, International AFL organizer with headquarters in Providence, R. I., today revealed that the company flatly offered a five cent hourly increase and three paid holidays. The union is asking for a contract guaranteeing six paid holidays and an 18-cent across the board raise.

Mr. Houle has been soliciting financial aid from brother unions throughout the area. He is making his headquarters at the Bridgway hotel, Springfield. So far, the response has been highly satisfactory, he said.

Although there have been three meetings between company and union officials since the newly organized union voted to strike, little progress has been made, according to Mr. Houle.

United Transfers Olson West

NEW YORK—Norman A. Olson, formerly New England representative of United Paperboard Company, has been transferred to the company's regional sales office in Chicago. Leeds Mitchell, Jr., will continue as New England representative of United's Folding Carton Division. With United Paperboard's new Springfield, Ohio, folding carton plant in full swing, the company is planning further expansion of its sales and service staffs in the Middle West, it is stated.

Valley Superintendents Meet at Holyoke

HOLYOKE, Mass.—Robert T. Collins of Bristol, Conn., an authority on labor relations, was the principal speaker at the business session of the fall and annual meeting of the Conecticut Valley division of the Paper Mill Superintendents' association which met at the Roger Smith hotel on Saturday.

Collins, who is personnel director of the New Departure division of the General Motors corporation, Bristol, spoke on "The Human Side of Labor Relations." He is a director of the National Association of Personnel Directors; president of the Hartford County Industrial Relations Society; professional member, Vocational Guidance Association, and registered personnel administrator with the International Research Foundation for Personnel Administration.

A graduate of the Wharton School of Business and Finance, University of Pennsylvania; Mr. Collins also attended the Hartford College of Law. In addition to other accomplishments, he has written many articles for publication in fields connected with personnel management and related subjects.

During the meeting, a representative of Calco-Heller-Merz showed a motion picture on color manufacture and use. Bridge or shopping tours were arranged for the wives of the delegates attending. A dinner dance closed the meeting.

Consolidated Will Produce Toilet Tissue for Staff

WISCONSIN RAPIDS, Wis.—Consolidated Water Power and Paper Company reported plans October 15 for the manufacture of a supply of toilet tissue, to be distributed among its employes and those of Ahdawagam Paper Products Company. It was said that 60,000 rolls would be manufactured.

A company official said that the Stevens Point mill, which now makes wrapping papers for the most part but which formerly manufactured toilet paper, will be used for the company project. Old equipment will be converted for the purpose of the special run, and the emergency supply probably will be ready for distribution during the week beginning October 28.

Each Consolidated and Ahdawagam employe will be allotted a number of rolls at a nominal price. Slips to be redeemed at the time of purchase will be included in the pay envelopes of October 25.

News Strike Perils Waste Paper Supply

HOLYOKE, Mass.—Paper mill officials here asserted today that the three-week-old strike on Springfield's four daily newspapers will have "a devastating effect" on the waste paper supplies at local paper mills before long.

Paper mill officials said it is too early to be felt yet, since waste paper is usually several weeks old by the time it gets to the mills. What is coming in now, they said, consists of isues published last month. Springfield's newspapers use some 12,000 tons of newsprint a year, or a monthly average of 1,000 tons. Most of the sales are made in the Connecticut Valley, and a majority of the paper eventually finds its way back to the beaters of the local paper mills, and is considered one of their principal sources of waste paper.

This loss of supply, officials said, comes at a time when the Holyoke mills are operating on a closer margin of raw supplies than at any time during the war. In fact, the Chemical Paper Manufacturing Company, one of the three large Holyoke users of waste paper, has been forced to go down to a five-day-work-week because of the shortage of raw materials. Most of the paper mills are running six days a week, and all of them have enough orders to run the full week.

Employes Acquire Heilbronn Business

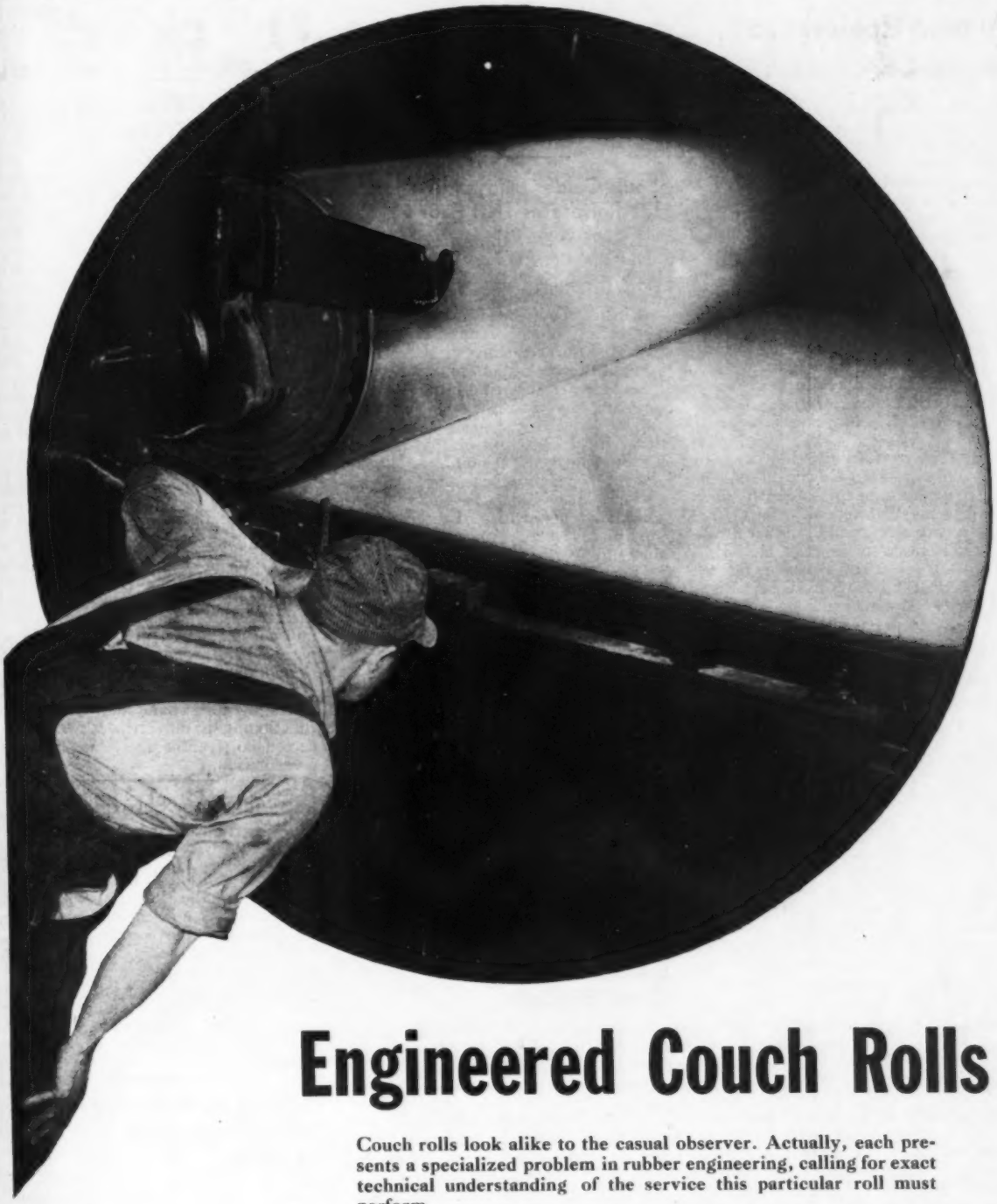
SAN FRANCISCO—Mrs. Charlotte E. Heilbronn, widow and sole heir of Joseph P. Heilbronn, pioneer American paper dealer in the Philippines, has just sold her two-thirds interest in the J. P. Heilbronn Company of Manila to Amos G. Bellis and John R. Carmichael. Mr. Bellis and Mr. Carmichael have both been employes of the company for many years, Mr. Bellis having acted as president and general manager, and Mr. Carmichael as vice-president and sales manager since the death of Mr. Heilbronn in San Francisco in December, 1939.

Mrs. Heilbronn, who now resides at the Fairmont Hotel in San Francisco, has had an active interest as a director of the company since its incorporation in 1914. The New York office is still at 16 Beaver Street.

Brotherhood Buying New Home

ALBANY, N. Y.—The International Brotherhood of Papermakers is acting to secure title to a new home on Washington Avenue known as the Stratton Building. Negotiations towards closing the deal are under way and it is understood that the property will cost in the neighborhood of $300,000. It is reported that the organization will occupy the entire fourth story following conclusion of the deal.

SERVING THROUGH SCIENCE



Engineered Couch Rolls

Couch rolls look alike to the casual observer. Actually, each presents a specialized problem in rubber engineering, calling for exact technical understanding of the service this particular roll must perform.

The couch roll shown above, developed for a leading board manufacturer, has contributed to an exceptional production record achieved in this mill.

"U. S." Press Roll coverings likewise are scientifically engineered for proper density, resilience, low drift and core adhesion.

UNITED STATES RUBBER COMPANY

1230 AVENUE OF THE AMERICAS • ROCKEFELLER CENTER • NEW YORK 20, N. Y.

D. L. Ward Stages Annual Conference

OCEAN CITY, N. J.—The third D. L. Ward Company sales conference at the Flanders Hotel, late in September, drew many mill representatives from all over the country with their wives. Also in attendance was D. L. Ward's sales personnel and wives as well as office personnel.

On Friday morning Ward department heads and two mill men addressed the entire group assembled in the solarium. These speakers gave a complete review of past accomplishments and future hopes of the company. Among those who spoke were Albert Struble, George E. Steck of Minnesota Mining and Manufacturing Co., Alfred H. Bennett, Robert L. Schell of Kimberly-Clark, Merritt L. Moffit, Jr., Robert H. Luff, and George C. Sparks.

On Friday afternoon addresses by mill men were enjoyed and the opportunity of contacting salesmen in a closed session gave mill representatives a valuable opening for conveying their message direct. Mark Peacock, Ditto, Inc., of Chicago, opened the meeting, followed by Grant Richardson of Hammermill and George Olmsted, Jr., president of S. D. Warren Company. The afternoon session was concluded when John D. Williams, manager of sales at D. L. Ward Company, introduced "Ad Vance."

The theme of the Conference — "Strength," "Unity," "Opportunity" and "Success"—was introduced at the Saturday morning session when Ralph G. Luff, president of D. L. Ward Company, addressed the group on "Strength." His message covered the company accomplishments over the past eight years and outlined plans and goals for the future.

John O'Hara Harte, of the McLean Organization in Philadelphia, capably covered the subject of "Unity" and its application in business operations. C. W. Browne described "Opportunity."

Sailing, cruising, fishing, swimming and golfing kept everyone busy Saturday afternoon and with the exception of a touch of seasickness due to a rough sea which followed Saturday morning's storm, a perfect time was had. First prize in golf went to Graham Carlton of Standard Paper Manufacturing Company and duffer's prize to William G. Luff. A prize for the largest fish caught went to Joseph H. Wright and prize for the first fish caught went to William C. Muntz. Those two fish comprised the catch so there was no prize for the "most."

Webster Feted on Departure

BRUNSWICK, Ga. — W. T. Webster, plant manager of the Brunswick Pulp and Paper Company, who has resigned and is leaving the city shortly to accept a position in Jacksonville, Fla., was feted at a farewell party tendered him by the labor unions representing workers at the local plant. Approximately two hundred members of local 490, International Brotherhood of Pulp, Sulphite and Paper Workers (AFL) met at the Federal Recreation Building here, where Mr. Webster was the guest of honor at a shrimp supper.

Louis Calder Enjoys His Work: He Reiterates That Fact

NEW YORK — In a foreword, and again as the closing sentence of a handsomely planned and executed brochure that celebrates the hundred years of history of the firm of Perkins-Goodwin Company, Louis Calder, president of the company gives the emphasis of repetition to his theme: "Paper is a fascinating business; I am enjoying my own share in it to the full." Between the terra-cotta board covers of a 72-page book that achieves a distinguished blending of paper stock, typography, illustration and execution, Mr. Calder has produced a crisp, studious history of the paper industry in North America. Properly, since the work is in celebration of the centennial of the firm that he heads, much of the history is traced in its relation to the foundation and rise of his company. But the history of the firm is made to appear against a background of colonial and civil war history, of the first uses of other than rag paper, of the influence of faster printing presses and linotype machines, and of the rise in paper bags and wrapping paper as the country grew. It covers a range from the first meeting of Printer William Bradford with Pastor Wilhelm Rittershausen to the current production rate of the Southland Paper Mills.

The book was privately printed for friends of the Perkins-Goodwin company. It constitutes a valued addition to their libraries.

Bowmall Sails on the Queen Elizabeth

NEW YORK—L. W. Bowmall, president of Bowmall & Company, Inc., accompanied by his wife, is sailing for Europe on the maiden voyage of the Queen Elizabeth, departing October 25th. Mr. Bowmall, who last year spent seven months in Europe, principally in Scandinavia, is now returning to the other side to visit the company's affiliations in England, Holland, Belgium, France and Italy. It is his intention to reopen the company's office in London.

Mr. Bowmall's journey is in the interest of the company's pulp and paper operations, and also of the rapidly expanding pulp and paper making machinery sales as well. Before returning Mr. Bowmall will visit the Scandinavian countries, patricularly in connection with the activities of Bowmall de Mexico, S.A., of which he is the Administrator, which represents in Mexico, two of Sweden's important pulp producers, Stora Kopparberg Bergslags, A. B. of Falun, Sweden and Korsnaes Sagverks Aktiebolag of Gefle, Sweden.

Professional Paper Group Becomes TAPPI Section

The Chicago Professional Paper Group planned for a record turnout at its October meeting on Monday evening, October 21, at the Chicago Bar Association. For many of the hard working members the event will represent the achievement of a goal in the form of affiliation with TAPPI as a local section. The presentation of the Charter and Banner representing this membership, will be made by K. P. Geohegan, National Executive Committeeman of TAPPI.

Following this ceremony, which means that the Chicago Professional Paper Group will now interchange information and experiences with other local sections and assume an even more influential status in the Chicago Technical Societies Council, Vaughn Jones, Service Manager of Hill Blackett & Company, advertising agency, will discuss "Advertising". Mr. Jones, long experienced in agency work, is expected to take the big audience behind the scenes in the planning, preparation and consummation of advertising programs. The problems of copy writing, promotional ideas, mechanical details, release of material to publication all providing a first hand knowledge of the functioning of advertising are all expected to feature the Vaughn Jones presentation.

Imperial Paper Enlarges Hudson Falls Plant

PLATTSBURG, N. Y. — Construction of a new addition to the Hudson Falls property of the Imperial Paper and Color Corp. is now under way following plans for postwar improvements. The new structure is to be used for maintenance purposes and is expected to be ready for occupancy within a few months. The building will be equipped with all modern conveniences. The Buhr Construction Co. has the contract.

Thilmany Nurse Named to Safety Council Post

KAUKAUNA, Wis. — Mrs. Hazel Leedke, Thilmany Pulp and Paper Company nurse in charge of the health department, has been named chairman of the Industrial Nursing section of the National Safety Council. She attended the recent National Safety Conference in Chicago. For two years, Mrs. Leedke has served as vice chairman for the nursing section of the Safety Council.

On October 13, Mrs. Leedke addressed the Industrial section of the Academy of Ophthalmology at the Palmer House in Chicago.

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a scheduled delivery basis.

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Swedish Pulp Supply Awaits Decontrol

NEW YORK — Added arguments for early action decontrolling paper and pulp were advanced this week in the trade, emphasizing that the ability of the mills to carry forward their present record production schedules into 1947 hinges largely on their assurance of an adequate supply of pulp. With commitments now being made for next year's shipments, with the seasonal closing icebound Swedish ports just ahead on the calendar the time actually is far advanced. It should not be delayed longer, in the view of those who watch the sources closely.

Arthur J. Sigel, vice-president of Gottesman & Company, was quoted in the public press as predicting that even under favorable circumstances, Sweden will not be able to ship, next year, a normal pre-war quantity of pulp. Sweden, in Sigel's opinion, will not have more than an estimated 1,200,000 tons of pulp for all world markets. Should the United States receive its normal 40 per cent of Sweden's exports the shipments will aggregate between 500,000 and 600,000 tons against approximately 1,000,000 tons shipped to this country in pre-war years, he continued.

"The special seriousness of such a cut in potentials for this market is in the fact that the price regulation is not expected to be a factor during 1947 in the same degree as at present," he said, calling attention to the need for early and favorable OPA action.

"The situation for the immediate future, as represented by prospects for the balance of this year and the first quarter of 1947 is aggravated by the usual, practically complete stoppage of shipments from Sweden during January, February and March, due to the freezing up of those ports in Sweden from which much pulp originates," Mr. Sigel continued. "In normal years, provision for such closed navigation caused by ice is made by greatly increased shipment during the last months of the preceding year. This, however, is precluded presently by an utter lack of supplies or inventory in Swedish hands and would, in any case be retarded by the present price situation."

To this, the Association of American Woodpulp Importers added the following statement:

"The reports from Sweden indicate that Swedish pulp manufacturers are very anxious to serve their customers here and they have informed that, providing a competitive market is obtainable, they expect to ship the same percentage of pulp to this country as they did before the war. The surest way to get the pulp is to decontrol and the sooner some action is taken the more pulp we can get for 1947."

International Completes New Financial Set-Up

NEW YORK—A present stock capitalization for International Paper Company of 230,579 Cumulative $4 Preferred Shares and 3,562,139 Common Shares, was made public this week by John Hinman, president of the company, as the final result of the recently completed program for retirement of all the company's Convertible Five Percent Preferred Stock.

At the beginning of the year, 925,963 shares of the five percent preferred were outstanding, representing a total par value of $92,596,300. All of this has now been retired. Only 48,740 shares were redeemed for cash, representing an outlay by the company of $5,117,700, plus the dividends accrued to the respective redemption dates. Of the remaining shares, 230,579 shares were exchanged for the new $4 preferred and common and 646,644 shares were converted into common.

"This brings to substantial completion a long-term program of financial rehabilitation on which the management has been engaged for over ten years," Mr. Hinman said. "The company finds itself in a notably sound financial position to meet the problems and opportunities of the postwar period."

Labor Board to Hear Worthington Case

HOLYOKE, Mass. — The National Labor Relations Board will hear evidence at Springfield November 4 concerning charges by the Time and Motion Study Association (independent) that the Worthington Pump & Machinery Corp. has refused to bargain collectively, although the organization has been chosen by a majority of such employes at the Holyoke plant. It is understood the company refuses to bargain collectively with this group on the ground that the score or so employes involved are a part of the management, inasmuch as they set rates for labor, in their time and motion studies.

Production Ratio Remains Above 100 Per Cent

NEW YORK — The ratio of United States paper production to mill capacity for the week ending October 12, 1946, as reported by the American Paper and Pulp Association was 105.9 percent compared with 107.2 percent for the preceding week and 96.2 percent for the corresponding week a year ago. This does not include mills producing newsprint exclusively. Paperboard production was 99 percent for the current week compared with 100 percent for the preceding week, and 97 percent for the corresponding week a year ago.

Expect Mill Boom In British Columbia

VANCOUVER, B. C.—If all the reports that are in circulation in British Columbia, and each of which is alleged to come from some official source, are correct, the province is going to become one of the largest pulp and paper manufacturing centers in the North American continent.

Latest report announces a forecast by "reliable sources" that a chain of pulp mills will be "spread over a wide area of British Columbia, involving many millions of dollars investment by powerful interests." According to an unnamed authority, consideration is being given to the erection of two pulp mills in the Prince George area, another at Quesnel, one on the west coast of Vancouver Island, and one on the lower Skeena.

There have been reports for many years that a pulp mill would be erected at Prince Rupert, and suggestions have have been advanced that Port Edwards which was developed as a base for the U. S. Army, during the war, would make an ideal location. A pulp mill here would have both rail and tide water outlets, and lumber could be brought down the Skeena River from central British Columbia.

According to an aerial survey covering 16,000 square miles, completed by the Dominion Forestry Branch, there is considerable timberland in the territory east of Prince George to the Alberta border that lends itself for pulp mill production. Other districts where pulpwood predominates, according to this survey, includes lower Vancouver Island, Sayward District in the central part of Vancouver Island, the Queen Charlotte Islands, and the Lillooet district. Suggestion of establishment of pulp mills in the Prince George and Quesnel area is also a revival of previous investigations in this territory.

Esselen Firm Changes Its Corporate Name

BOSTON — Effective November 1, 1946, the firm name Gustavus J. Esselen, Inc., will be changed to Esselen Research Corporation. There will be no change in the management, personnel or policies of the business. Dr. Gustavus J. Esselen will continue as president and active head, with Dr. John G. Hildebrand, Jr., serving as vice-president; Martin H. Gurley, Jr., as chief of the textile and paper section; and Arthur M. Robinson as chief of the chemical engineering section.

The new corporate title is believed to be more descriptive of the breadth and character of the business, which has greatly expanded in the scope of its work, and in staff and equipment, since its founding over a quarter of a century ago. Its offices and laboratories will continue to be located at 857 Boylston Street.

WHERE WET STRENGTH COUNTS—

—count on UFORMITES 467 and 470!

No need to tell you that food wrapping papers must have superior wet strength. For this and many other applications, the UFORMITES will impart that wet strength efficiently and economically.

UFORMITE 467 is particularly designed for use with Kraft by beater addition. UFORMITE 470 is recommended especially for sulfite stocks but can be used effectively with Kraft, rag and groundwood—in stocks where low acidity is important.

Both of these urea formaldehyde resins can be easily added to your present processes—require no major changes in your operating procedure. No pretreatment or special handling is necessary. As little as 1% resin solids on dry fibre weight will increase wet strength to 20-30% of the dry strength!

You'll want to investigate these resins. Their use not only gives higher wet strength properties, but also improves dry tensile and Mullen, fold, uniformity of sizing, and coating surface characteristics. Write for full details.

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THE RESINOUS PRODUCTS & CHEMICAL COMPANY

WASHINGTON SQUARE, PHILADELPHIA 5, PA.

Tinker Finds Cause For Reassurance

(Continued from page 9)

countries are the largest suppliers of our imported pulp. Because there has been no currency revaluation in Norway and Finland, these latest prices are apparently in line with their domestic costs and shipments should not be adversely affected. However, the disturbing factor here is that Norway has shipped no wood pulp as yet to this market since VE Day, while Finland, though making a noteworthy effort to re-establish herself here on a pre-war status, is limited by domestic market conditions and reparation shipments to Russia. The only answer to increased pulp supplies appears to be increased domestic production. Here again the question is, 'Have the price increases been high enough to provide the necessary stimulus?' If so, is there available capacity in the marked pulp mills?

"I have gone somewhat into detail about the wood pulp picture as it appears to me because it is the most disturbing problem facing the industry! That is the principal problem, but there are many lesser problems — chemicals, starch, labor and freight car shortages. Like every industry today, we too have our share of supply problems.

"Coming back to the current paper situation, an up-to-the minute review of our production this year should answer many questions on what the industry is doing to meet the present excessive demand.

"Last year the industry ran at approximately 90 percent of capacity, producing 17,370,000 tons of paper and paperboard. Allowing for imports and exports we had a new supply of paper and paperboard of 19,667,000 tons. This was over 5,000,000 tons above the pre-war 1935-39 average "new supply" of 14,585,000 tons. For the first nine months of this year the mills have averaged slightly over 100 percent of capacity production based on a six day week, manufacturing approximately 14,200,000 tons of paper and paperboard. Comparing this with the first three quarters of last year—you will see that we are running about 10 percent above it. At this pace, this year's production will exceed last year's by 1,700,000 tons to reach a total of over 19,000,000 tons. Allowing for the usual December let-down and expected pulp shortages, the production should reach a record figure of at least 18,600,000 tons.

"I don't mean to wear you down by citing a lot of statistics, but statistics do give an irrefutable record of an industry's performance, and this record, of which we are justly proud, is needed today to counteract, to my mind, a good deal of ill-advised 'shortage talk.'

"An interesting indication of what appears to me to be one of the major causes of the present shortages came to light in a recent issue of the Monthly Bulletin of the Federal Reserve Board. The physical volume of sales and of goods received by 296 department stores in various Federal Reserve Districts in June 1946 were just about doubl ethe 1936-39 average volumes. Inventories were only 35 percent greater in physical volume, but, and here is the rub, outstanding orders placed by these same stores were 6.6 times the average for the pre-war year of 1940, all this in terms of physical volume.

"Was there any duplication of orders there? Perhaps not. But if each of the suppliers of these goods to these stores were to issue just one set of duplicate orders for his paper supplies, the paper orders placed would be 13.2 times the pre-war average volume needed for this trade. The remarkable increase in the turnover of goods in department stores in the first half of the year was largely in the non-durable goods items because durable goods were then not available. The non-durable goods items are more closely related to paper production than the durable goods items. Durable goods items are beginning to flow more freely to the stores and it is expected that they will soon absorb some of the purchasing power that has been spent on non-durables. This should diminish the pressure on paper supplies.

"With this picture of advance buying it is easy to see how orders for paper can snowball if "scare buying" is induced by such "shortage" statements as have emanated from Washington. With only double the pre-war physical turnover orders outstanding are 6.6 times the pre-war physical volume! The net resultant of orders offered to paper mills is probably running more than 13 times the pre-war volume! The mills are indeed well advised to limit customers to quotas which are possible of fulfillment. It is the only orderly way in which this situation can be handled.

"But what a house of cards is being set up by this type of demand! The first hint of a full supply of commodities will bring out cancellations from the stores so fast that the proverbial morning after headache will seem mild!

"There is just one other matter upon which I would like to digress briefly and that is to give you the picture on exports as it actually is. Recently, a news item appeared showing paper exports in hundreds of millions of pounds. True, they were that, but when converted into tons and compared to production, the paper exports figures lose a great deal of argumentative weight. Paper exports for the first seven months of this year have totalled 150,249 short tons, about 2.5 percent of paper production for these seven months (5,546,910 tons). Paperboard exports have likewise been very low, only 1 percent of production. It might be of interest to note here that exports of wood pulp, 24,450 tons, were less than one-half of one percent of production for the first seven months. Imports of wood pulp on the other hand have been almost 1,100,000 tons through July of this year. Would these statistics indicate that we are exporting an alarming amount—such as to require special newspaper mention? No, I think not!

"Gentlemen, these are the facts, presented as accurately as we are able to put them together from our many sources of information—industry, government and the trade. Would you not say it throws a different light on the entire supply situation? I hope so, for misconceptions must be righted before the confusion caused leads to too much harm.

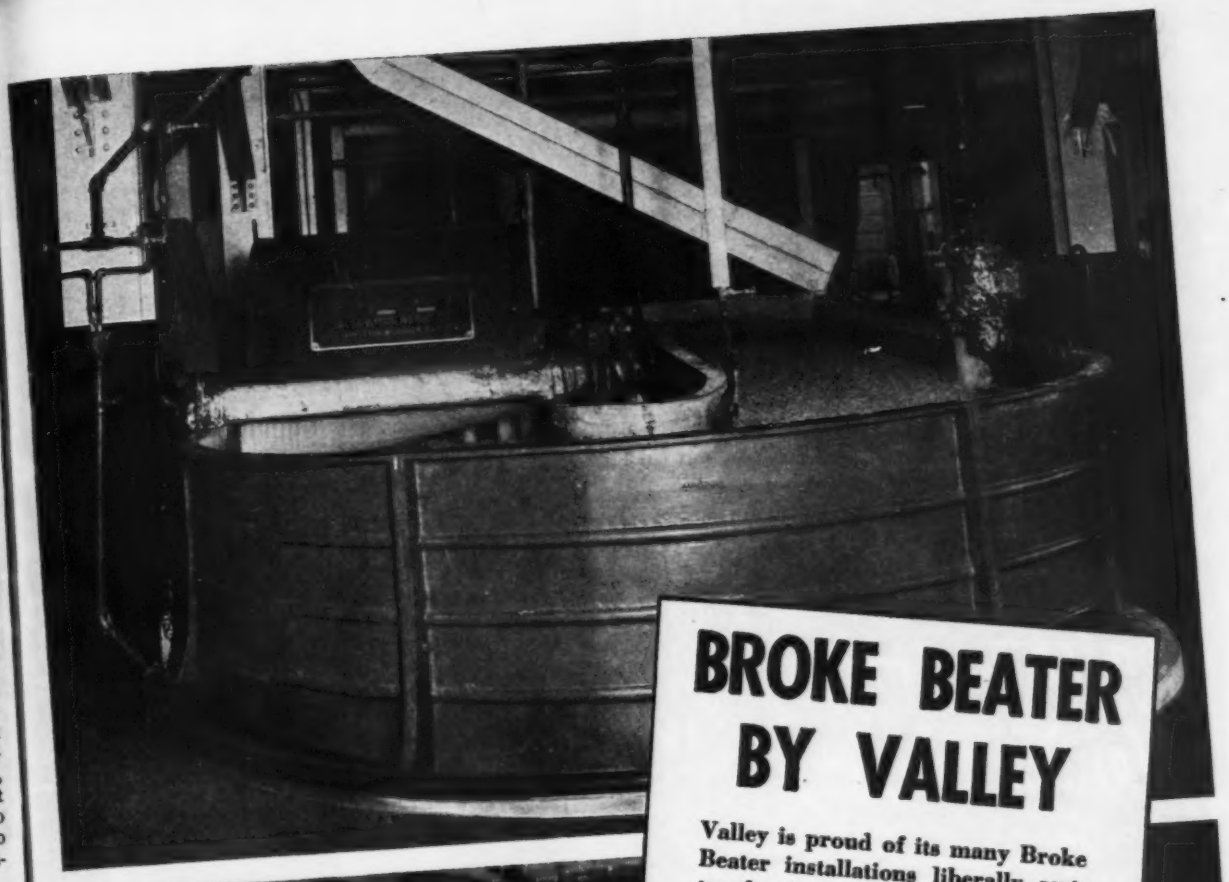
"In conclusion, I would like to emphasize just one or two points again. Our industry is producing more than it has ever produced in its history. We estimate our 1946 paper and paperboard production to be 18,600,000 tons, our imports 3,000,000 and our exports less than half a million tons giving us a new supply this year of about 21,245,000 tons. If all this paper is consumed this year, which in all likelihood it will be, post-war consumption has increased over 45 percent over pre-war. It is a sizeable job to meet such a heavy increase, and our industry as I have attempted to show you, is not shirking its responsibility, but rather welcomes it, for it wants to maintain its proud war record and to contribute its share to America's envied abundance."

Newsprint Shipments Exceed Production

NEW YORK — Production in Canada during September 1946 amounted to 330,063 tons and shipments to 335,874 tons, it was reported this week by the Newsprint Service Bureau. Production in the United States was 61,025 tons and shipments were 55,587 tons. The output in Newfoundland was 29,486 tons and shipments were 31,048 tons making a total North American production of 420,574 tons and shipments of 422,509 tons. Total production in September 1945 was 354,546 tons and shipments were 357,925 tons.

The Canadian mills produced 688,557 tons more in the first nine months of 1946 than in the first nine months of 1945, which was an increase of 29.0 per cent. The output in the United States was 38,799 tons or 7.2 per cent more than in the first nine months of 1945; in Newfoundland production was 27,380 tons or 11.2 per cent more, making a total increase of 754,736 tons, or 23.9 per cent more than in the first nine months of 1945, and also was higher than in any preceding similar period.

Stocks of newsprint paper at the end of September were 123,890 tons at Canadian mills, 12,270 tons at United States mills, and 68,416 tons at Newfoundland mills, making a combined total of 204,576 tons compared with 206,511 tons on August 31, 1946, and 117,825 tons at the end of September 1945.

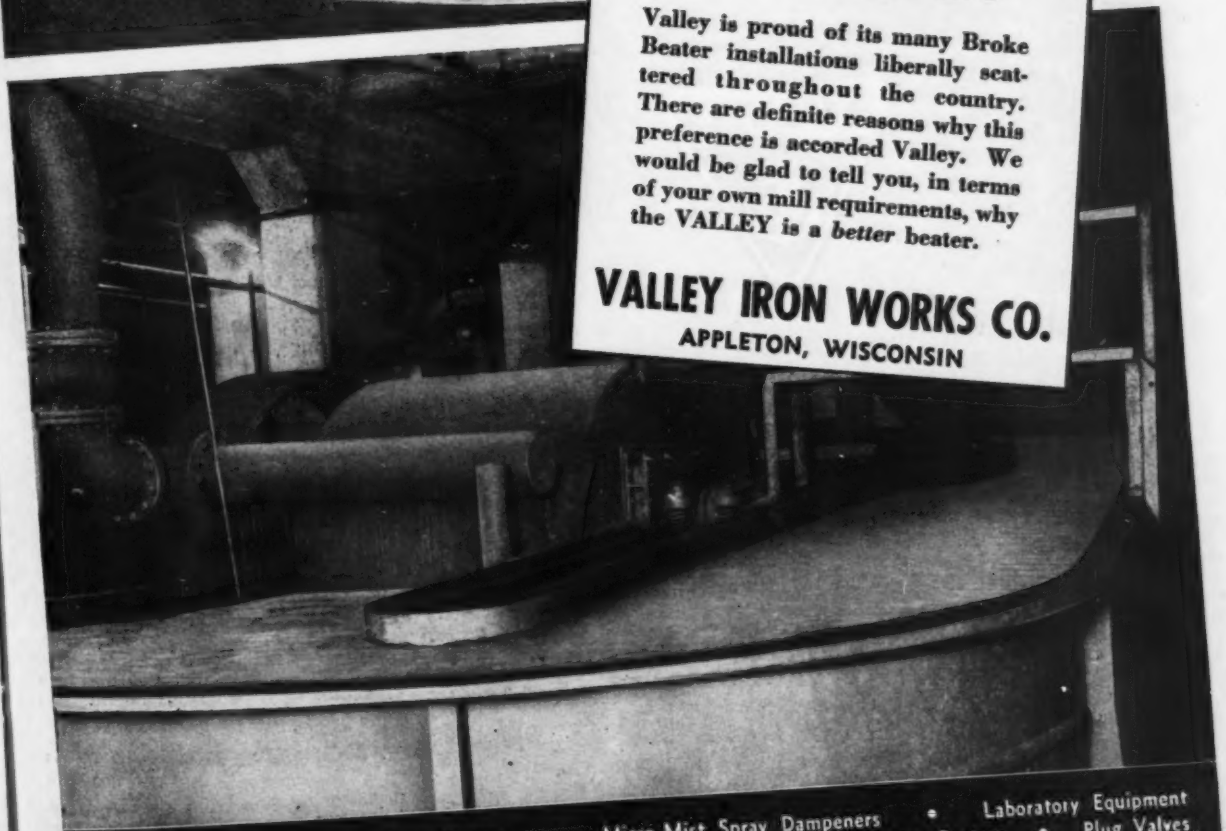


BROKE BEATER BY VALLEY

Valley is proud of its many Broke Beater installations liberally scattered throughout the country. There are definite reasons why this preference is accorded Valley. We would be glad to tell you, in terms of your own mill requirements, why the VALLEY is a *better* beater.

VALLEY IRON WORKS CO.

APPLETON, WISCONSIN



Slices and Head Boxes • Screw Presses • Micro-Mist Spray Dampeners • Laboratory Equipment
Pulp Washing Systems • High-Speed Beaters • Breaker Beaters • Vortex Beaters • Plug Valves
Flat and Rotary Screens • Thickeners • Deckers • Paper Markers • Roll-Headers

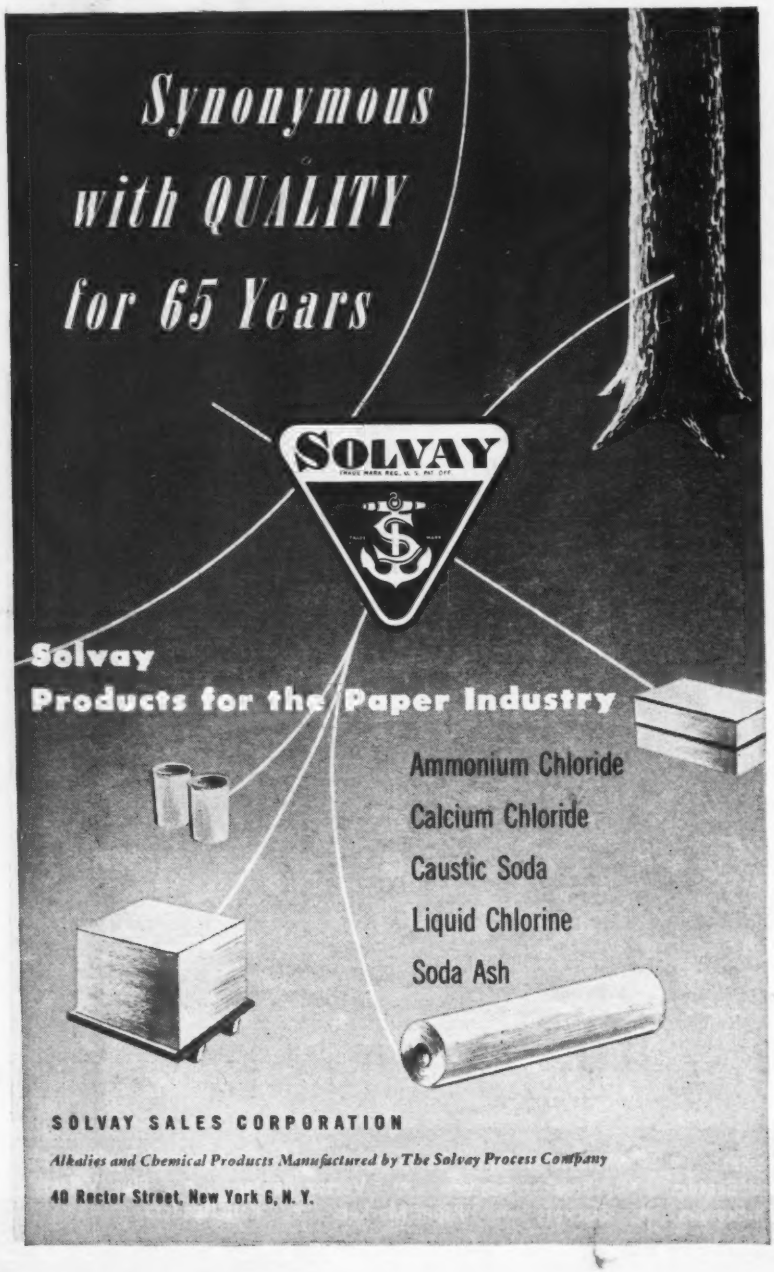
Columbia Development Opens in Vancouver

VANCOUVER, B. C. — Columbia Mill Development Company, in common with other newly established organizations in Vancouver, is experiencing great difficulty in securing office accommodation. For the time being, the company is operating from the offices of A. C. R. Yuill, 914 Royal Bank Building. Mr. Yuill is consultant and a director of the new company.

The Columbia Mills is working on plans for the erection of several new pulp mills in British Columbia. The company has not as yet completed negotiations as regards the actual building of the mills, but is drafting plans for several interested parties.

Squadron Leader A. M. Ward is head of the company. Mr. Ward has had 20 years experience in the pulp industry, being a member of the staff of Price Brothers and Company, Ltd, of the paper division of the Dominion Engineering Company, Ltd.; and he was also with Charles Walmsley Company of Montreal and Bury, England, and has visited pulp and paper mills in Scandinavian countries.

J. R. Dunbar is vice-president of the company. Mr. Dunbar has invented the Dunbar screen drive, and other equipment used in the pulp industry. S. C. Rooney, formerly with Waterous Ltd., the Aluminum Company of Canada, and the British Columbia Pulp and Paper Company, is general manager, and chief engineer of the firm.



Hearing Is Opened on Kaukauna Power Plant

MADISON, Wis. — The Wisconsin Public Service Commission will hold a public hearing here October 24 on the $750,000 expansion project proposed by the Kaukauna municipal electric utility.

The company seeks state approval for the erection of a new power plant at the south end of the Little Chute dam in the village of Combined Locks. The plant would include three 1655 horsepower turbines and three 11,000 kilowatt generators.

The station would be semi-automatically controlled from the new Badger plant of the utility about three miles distant, and the improvement would include the building of a new 12,000 volt line from the plant site to the Combined Locks Paper company about a mile distant where it would be connected with the present circuits supplying power to the factory.

H. F. Weckwerth, superintendent of of the utility, has advised the state commission that the new plant is needed to meet normal growth of the utility's business and increasing demands from its larger power customers.

The Thilmany Pulp and Paper Company has entered into a ten-year agreement with the city for a larger power load and the Combined Locks Paper company also is increasing its power demand, he related.

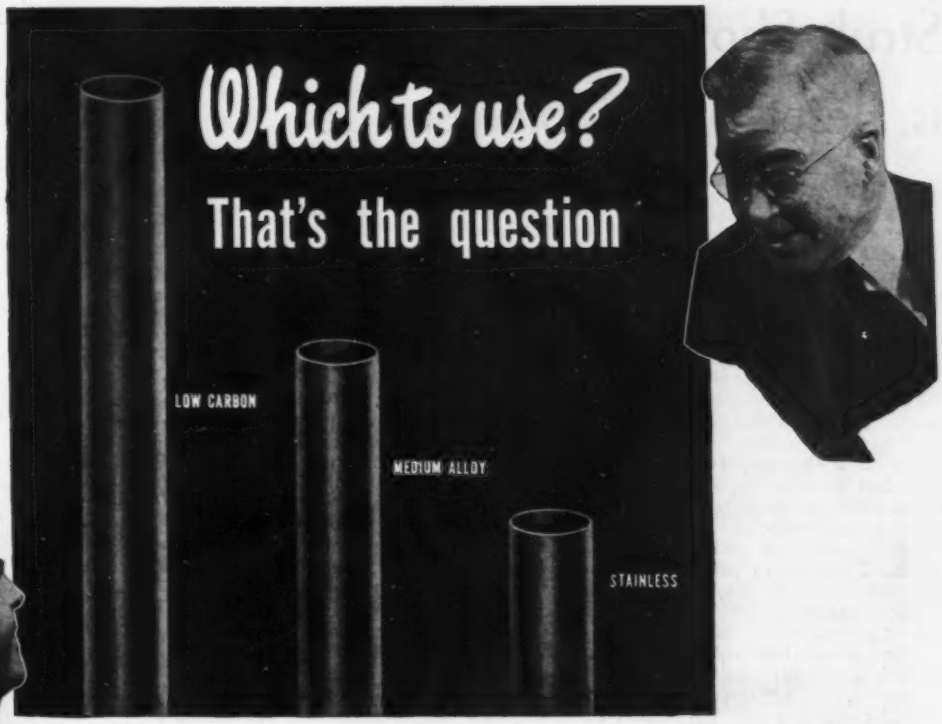
The utility will lease land and real estate for the plant from the Green Bay and Mississippi Canal company under an agreement to pay a stipulated rate for energy produced until 1963.

War Department Studies Fox and Wolf Control Plans

APPLETON, Wis.—United States War Department engineers and congressmen from this area were scheduled to meet Thursday, October 24, to acquaint themselves with flood control problems along the Fox and Wolf rivers. The meeting will be held on the farm of Ralph Gehring, route 1, Schiocton, Wis.

Outagamie County Judge Gerald Jolin, counsel for the Fox and Wolf River Control Association, said United States Senator Alexander Wiley, Chippewa Falls; Congressman Frank B. Keefe, Oshkosh; Congressman John W. Byrnes, Green Bay, and Congressman Reid F. Murray, Ogdensburg, will study the problem with association members. The War Department engineers will come from the Milwaukee district office.

The association, formed at a meeting called by Judge Jolin, is composed of men interested in controlling flood conditions on the two rivers, primarily through a series of reservoirs which would benefit both industry, particularly Fox river valley paper mills, and farmers.



WHEN IT COMES TO TUBING...

It pays to take a tip from headquarters

Not long ago someone asked the superintendent of a well-known mill why he had so little trouble with his evaporator, condenser and heater tubes. His answer was, "We put the right tubes in the right places."

That sounds very simple. But it isn't the whole story. What he failed to explain was that, first of all, the mill had carefully and painstakingly analyzed the exact conditions of service—and then had put it up to a NATIONAL Tubing Specialist to select and provide tubing that had the proper physical and chemical characteristics to meet the requirements.

Why not let us help *you* put the right tubes in the right places?

Not only are our men thoroughly trained to grasp your problems quickly, but they represent an organization which for more than 50 years has been the world's leading producer of tubular steel products.

Any recommendations our specialists make to you are based on this unequalled and specialized experience. In addition they can offer for your selection, tubes of *every* steel analysis—from low carbon to the finest alloy and stainless steels—that will meet practically every operating condition, whether simple or unusually severe. Surely that's important.

Our main concern is to make sure that you get tubes that will do the best job for you — tubes that will insure safe, long-lasting, economical performance. If the job can be handled by steel tubing—we know it can be handled most efficiently by U·S·S NATIONAL Seamless Tubing. And if conditions indicate that some other material is called for, we'll be frank to tell you so.

U·S·S NATIONAL SEAMLESS
"Walls without Welds"

In making NATIONAL Seamless Tubes, billets of the finest selected steel are pierced at proper temperatures, then precision rolled to the correct size and wall thickness. At every stage of production, thorough tests and inspections keep quality at its peak. The result is NATIONAL Seamless as you receive it—uniform in wall strength, accurate in dimensions, and uniform in all physical properties.

WALLS WITHOUT WELDS

NATIONAL TUBE COMPANY

PITTSBURGH, PA.

Tubing Specialties Division

Columbia Steel Company, San Francisco, *Pacific Coast Distributors*
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UNITED STATES STEEL

Strub Shows That Export Trade Is Beset by Problems Too

NEW YORK—Sharp and logical disagreement with figures laid before the National Association of Purchasing Agents recently was taken this week by J. Francis Strub, vice-president of the United States Paper Exporters Council, Inc. The figures do not present an accurate picture, he argues; they are presented against a misleading background; and the export of paper is placed in an unworthy light. Against these factors, Mr. Trub goes on to show that export of paper always has been an important influence in the ability of domestic mills to keep going economically in the interest of domestic consumers, and that the present small amount of paper that is going abroad in no way represents a simple method of evading domestic ceiling prices.

"The paper industry, which performed a gigantic wartime job and without a moment's respite took on the task of meeting a pent up civilian demand, has not been spared public criticism. At a meeting of the National Association of Purchasing Agents recently held in New York, F. E. McCulley of the Louisville Courier-Journal carried the torch for the P.A.'s. He deplored exports of paper, contending it was a short-sighted policy on the part of American mills and that when things were normal again and orders hard to get, the lush foreign markets would not be available.

"Had he been familiar with the facts, it is doubtful that Mr. McCulley would have made the above statement or otherwise condemned paper exports. Lest others inadvertently accept his remarks as a revelation of the cause of an apparent paper shortage, a presentation of the true story becomes not only timely, but important. In denouncing exports, Mr. McCulley spoke of normal times when orders are hard to get. The inference gathered from this remark is that under normal conditions mills find it difficult to obtain sufficient business to assure them profitable operations. This is undeniably correct.

"A paper mill cannot stop and go with a change of shifts. It must operate around the clock and its major operating costs go on, day and night, throughout the year. A dearth of orders means a loss to its owners. Prior to the war, mills that restricted their sales to the domestic market rarely employed more than 70 percent of their productive capacity. Frequently, their production was below the break-even point; a ruinous level for an enterprise requiring a large invested capital. Some export business could well have meant the difference between profit and loss.

"The so-called lush foreign markets are not, by any stretch of the imagination, outbidding domestic consumers, as Mr. McCulley would have us believe. The same O.P.A. ceiling prices in effect for domestic distribution apply to sales for export. The assumption that the foreign markets will disappear is likewise a rash conjecture. Improved literacy and increased industrialization in non paper producing countries, to say nothing of the partial destruction of foreign paper making facilities and the almost wholesale elimination of the industry in some leading prewar exporting countries, herald an active future demand for American-made papers. The presumption, therefore, that American mills are flirting with fair weather friends is fundamentally unsound.

"The industry's perennial problem has been the development of markets. Comprehensive plans are now underway for large capacity expansion in the industry and it is generally believed that an adequate operation of this anticipated capacity cannot be maintained without enlarged markets.

Opportunity is Offered

"Present opportunities to gain a foothold in foreign markets are far more favorable than ever before. Now is the time for the paper industry to secure its position in overseas markets. Unless a fair proportion of our production is allocated for export, our trade relations with long established foreign customers will suffer and our present opportunities of gaining new customers will be lost forever.

"The members of the National Association of Purchasing Agents were informed by Mr. McCulley that exports of fine papers from this country were five times greater than in a good prewar year. To support this statement he quoted Department of Commerce figures for the first four months of 1946, which he projected, through the method of simple proportion, to a potential export figure of 175,200,000 lbs. for the calendar year. This potential figure he compared with some 32,000,000 lbs. allegedly exported in 1937, a year which he designated as one of our best prewar years for export sales.

"It may cause one to wonder why the figures were given in pounds, especially when the entire paper industry is capable of producing 19 millions of tons. Perhaps our exports expressed in pounds sound enormous, whereas actually they are and have been pitifully small. Furthermore, the figures quoted do not check with the statistical data available. Thirty-two million pounds, which were reported by Mr. McCulley as the total exports of fine papers during 1937, equal 16,000 tons. Actually, the 1937 exports of fine papers totaled 21,481 tons. There is also fault to be found in his statement, that 1937 was one of our best prewar years for export sales. As far as fine papers are concerned, it was one of the better years. However, in 1919 and 1920, when our productive capacity was less than half of our present facilities, we exported 37,680 tons and 25,452 tons respectively. In more recent prewar years, we exported 24,045 tons in 1939 and 56,718 tons in 1940. In order fully to understand the story of fine papers, it is well to proceed with the analysis a few steps further. The current figures available for the first six months of 1946 reveal that during that period the total exports of fine papers totaled 50,000 tons. This included tonnage representing a carryover of lend-lease shipments as well as shipments for U.N.R.R.A.

"Mr. McCulley has not only been fair but realistic when he omitted U.N.R.R.A. exports from his computation of potential exports for 1946. It therefore follows, that if we deduct from the above mentioned 50,000 tons some 12,500 tons which were directed by our government agencies to liberated areas, our commercial exports of fine papers for the first six months of 1946 were actually some 37,500 tons. By mathematically projecting these figures for the calendar year, the potential exports for 1946 would amount to 75,000 tons, and not 87,600 tons as forecast by Mr. McCulley. Seventy-five thousand tons are only 32% greater than the best prewar export year.

What Statistics Tell

"A fairer presentation of the story, however, would be to compare exports with production. Exports of fine papers, during our best prewar years, ranged from 10.8% of production in 1919 to 7.7% of production in 1940. If our exports of fine papers during 1946 should reach the projected figure of 75,000 tons, it would represent approximately 6.3% of production.

"Proceeding further on the subject of fine papers, and if the reader will stand for a few more statistics, it should be borne in mind that the classification "fine papers" embodies a variety of grades. Included in fine papers is cigarette paper. It is common knowledge, however, that prior to the war our cigarette industry was almost wholly dependent on imported cigarette paper. Through foresight and good management, new cigarette paper mills were brought into production almost with the commencement of hostilities abroad. Today, we are no longer dependent on a foreign source of supply for our cigarette paper but, after meeting all domestic demands, we are in fact established as a very important exporter of that grade. The exports of cigarette paper for the first six months of 1946 totaled 7,403 tons. Certainly such an exemplary demon-

Take a WALWORTH No. 225P Bronze Valve Apart...

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It will pay you to look inside the Walworth No. 225P. Compare the improved design, construction and convenience features shown in the "exploded" view. Notice the husky bronze body, the removable seat and disc, the oversize stem, all assuring maximum protection against wear and leakage.

Further, No. 225P is the TOUGHEST bronze valve your money can buy. The stainless steel, noncorrosive seats and discs are heat treated to a hardness of 500 Brinell — hard enough to scratch glass and crush nails. For this reason, the valve can be closed on sand, slag, scale and similar flotage without injury to the seating surfaces, and "wire drawing" is practically eliminated. Thus years of tight, positive shut-off are assured.

Available in both globe and angle types (angle type: No. 227P) in sizes ¼" to 2", this quality valve is recommended for 350 lbs. W.S.P. at 550 F, and 1000 lbs. non-shock service on cold water, oil, gas or air.

For full data on this long-life, economical Walworth Bronze Valve, see your local Walworth distributor, or write for Circular 82.

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stration of vision and leadership cannot be criticized by those who clamor for paper supplies.

"While cigarette paper is now included in the fine paper group, it is a grade that is not in common demand by users of fine paper. Actually it is a separate entity and for the purpose of comparative figures of our exports of fine papers, it would only be fair to exclude our exports of cigarette paper. The total projected exports of fine papers for the year, after deducting cigarette paper, would only approximate 60,000 tons or 5.3 percent of production; definitely not five times our best prewar year.

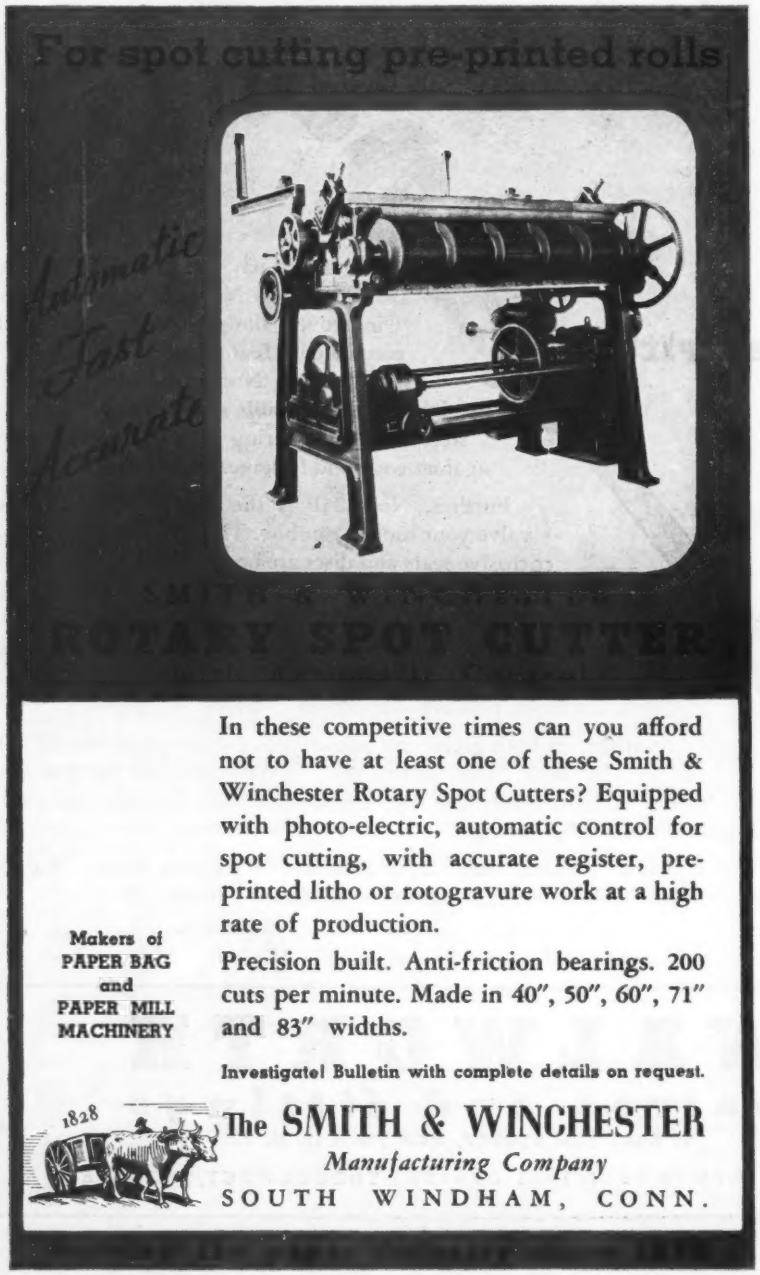
"It is difficult to comprehend why exports of fine papers were singled out. The fine paper group represents a comparatively small segment of the sixth largest industry in the country. In total annual tonnage, it produces approximately five percent of the total paper industry's output. Surely the members of the National Association of Purchasing Agents, who buy paper for its myriad uses, are largely interested in other grades as well. No doubt, if they are in the market for wrapping paper, bags, containers or book and printing papers, they experience the same difficulties everyone does; namely, there is insufficient paper available to meet all their immediate wants!

"If, by implication, it were understood from the erroneous data presented on our exports of fine papers that the exports of all grades of paper have reached record breaking figures, the following information should dispel all such notions.

"In 1917 and 1918, both war years, our exports of all grades of paper totalled 274,246 tons and 300,669 tons respectively or 4.7 percent and 5 percent of production. During World War II, when the Government exercised controls on our commercial exports and paper was principally exported for strategic reasons, we exported 341,920 tons in 1942; 319,922 tons in 1943; 313,917 tons in 1944 and 458,634 tons in 1945 or, in terms of percentages of our total production, 1.8 percent to 2.6 percent. Perhaps this revelation of facts may assuage those who felt that during the war they had been deprived of paper usage. During World War II, when our entire industrial economy was mobilized to produce for war and to supply the essential needs of our allied nations, we did not have to dip into the available supply of paper for export to the same large degree as we did in 1917 and 1918.

"For the first eight months of 1946 the total exports, including lend-lease and U.N.R.R.A. shipments, were 178,300 tons or, approximately 266,400 tons for the year. It is expected that the production of all grades of paper for the year will total almost 19,000,000 tons. The exports of all grades of paper, therefore, will be approximately only 1.4 percent of production. In only one year since 1904 have our exports of paper been so proportionately small.

"Compare these figures with the so-called good prewar export years and it will be found that in 1919 we exported 420,540 tons, in 1920 367,815 tons, in 1939 248,569 tons, in 1940 553,284 tons, in 1941 464,389 tons and in Mr. McCulley's selected year of 1937 —221,419 tons. To conclude that our present exports of paper are five times as much as our best prewar years is a gross exaggeration. In fact, as has been shown above, they are considerably less."



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LaPorte Settlement Leaves Three A-C Plants Closed

MILWAUKEE—A fourth settlement in the strike situation at the Allis-Chalmers Mfg. Company, has reduced to three the number of the firm's plants still out on strike. The latest agreement was reached at the concern's La Porte, Ind., plant between Local 119, United Farm Equipment and Metal Workers (CIO) and the company.

Three of the company's eight plants still out on strike include the main works at West Allis, and the plants at Boston, Mass., and La Crosse, Wis. September saw the settlement of strikes at Pittsburgh, Pa., Springfield, Ill., and Norwood, Ohio.

At West Allis, more than 2,000 production workers have returned to their jobs, according to company officials.

ARMCO STAINLESS gives you the "BIG 7"

1 LESS SLIME

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The American Rolling Mill Company

Report Active Demand For Forest Tree Seeds

MADISON, Wis. — The market for forest tree seeds this fall is an exceptionally good one, due largely to the eagerness of public and private nursery manager to restock their seedling plots in anticipation of a greatly expanded reforestation program.

The Wisconsin Conservation Department is offering the highest prices on record and is receiving seed at six stations distributed through northern Wisconsin. The department is advertising that it will buy all "the Norway pine and white spruce we can get," and that it needs considerable quantities of white and jack pine, balsam and tamarack seed.

The highest price of $6 a bushel is being offered for white spruce, while Norway pine cones will be bought at the rate of $1.50, jack pine at $2.50, balsam at $4, and tamarack at $6. Harvesters have been instructed to deliver seed at state conservation department stations at Wausaukee, Black River Falls, Wisconsin Rapids, Gordon, Hayward and Trout Lake.

Michigan Superintendents Will Hear Montgomery

KALAMAZOO—The Michigan Division of the American Pulp and Paper Mill Superintendents Association and the Chief Engineers Club of Kalamazoo Valley will hold a joint meeting on Thursday evening, November 21, at the Park-American Hotel. Dinner will be served at 6:30 P.M. The speaker will be A. E. Montgomery, vice-president of the J. O. Ross Engineering Corporation. His subject is "Waste in Paper Mill Drying and Ventilating."

Marathon Directors Meet at Menasha

MENASHA, Wis.—Marathon Corporation directors held a two-day meeting at the Menasha office beginning Wednesday, October 16. The directors held business meetings and inspected plants and construction operations, and held several informal meetings with Menasha executives and employes. On Wednesday evening the visitors and a number of industrial executives from Neenah, Menasha and Appleton were dinner guests of Leo E. Croy, executive vice-president of Marathon.

Among those at the two-day session were D. C. Everest, president; John Stevens, Jr., and Allen Abrams, vice-presidents, and J. S. Alexander and Aytch P. Woodson, all of Wausau; Mr. Croy, Neenah; Philip D. Armour and M. P. McCullough, Chicago; C. J. Winton, Jr., Minneapolis, and L. F. V. Drake, New York. Other officials in attendance included R. J. Sund, Neenah, a vice-president; D. A. Snyder, Neenah, director of sales, and A. M. Van Douser, F. P. Johnson and Frank Dvorak, all of Wausau.

Kimberly Foremen Will Discuss Memphis Plant

NEENAH, Wis. — The new Memphis plant of Kimberly-Clark Corporation will be discussed at the November meeting of the Badger-Globe Foremen's Club at the Valley Inn by James Murphy and Forrest Werling, it was promised October 14 during the dinner program at the Valley Inn. Gordon Schanke and Rudy Burr reported on their trip to St. Louis to attend the National Association of Foremens convention. Mr. Schanke discussed "Aptitudes," and Mr. Burr spoke on "Why a Foremen's Club."

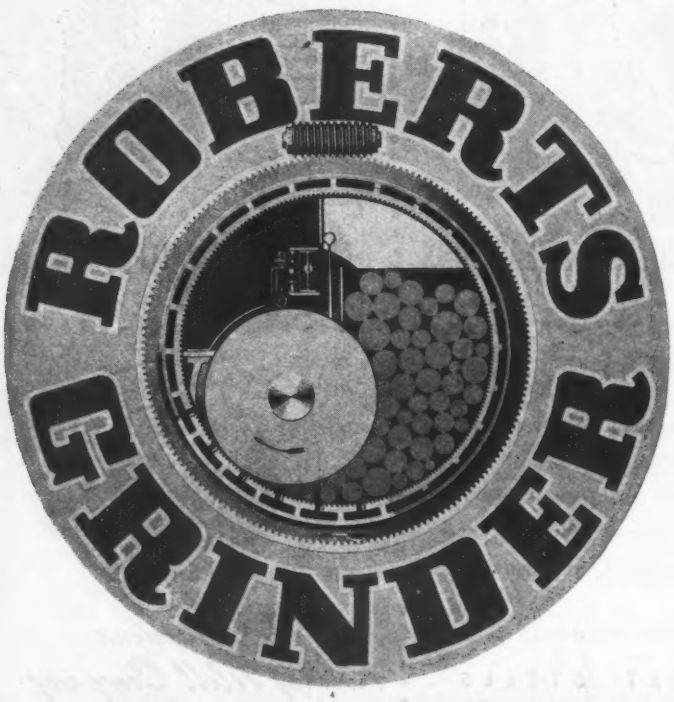
Five new members were introduced. Announcement was made of a dinner dance November 2 at Hotel Athearn, Oshkosh, Wis.

Industrial Equipment Introduces New Type Gantry Crane

Portability, ease in handling and flexibility for many varied lifting services are the features of this new Gantry Crane. Of one-ton capacity with generous safety factor and minimum gantry weight, it has a broad variety of uses at loading platforms and docks, in power plants, machine shops, factories and garages and for construction, maintenance and farms.

Fully described in Bulletin PG-648. It is made by Industrial Equipment Co., 315 N. Ada St., Chicago 7, Ill.

CONTINUOUS HIGH-SPEED GRINDING



LOOK at the illustration of the inside of a Roberts Grinder. It shows the application of the wood and the operating principle responsible for continuous, high-speed, large capacity production. The pulpwood is drawn into the diminishing wedge of the feed pocket by the rotating ring and forced against the stone at a predetermined pressure to be ground into pulp. The speed of the ring can be controlled to create varying pressures resulting in different rates of grinding to produce any grade of pulp. The power input governs the speed of the stone and so determines the pulping capacity. Grinding at surface speeds of 5000 feet per minute using up to 3000 H.P. with an output of 50 tons or more in 24 hours is possible and practicable with the Roberts Grinder.

Here is continuous, faster production for the modern groundwood mill, greater pulp tonnage in less time, in less space and at lower cost per ton. Write for complete details.

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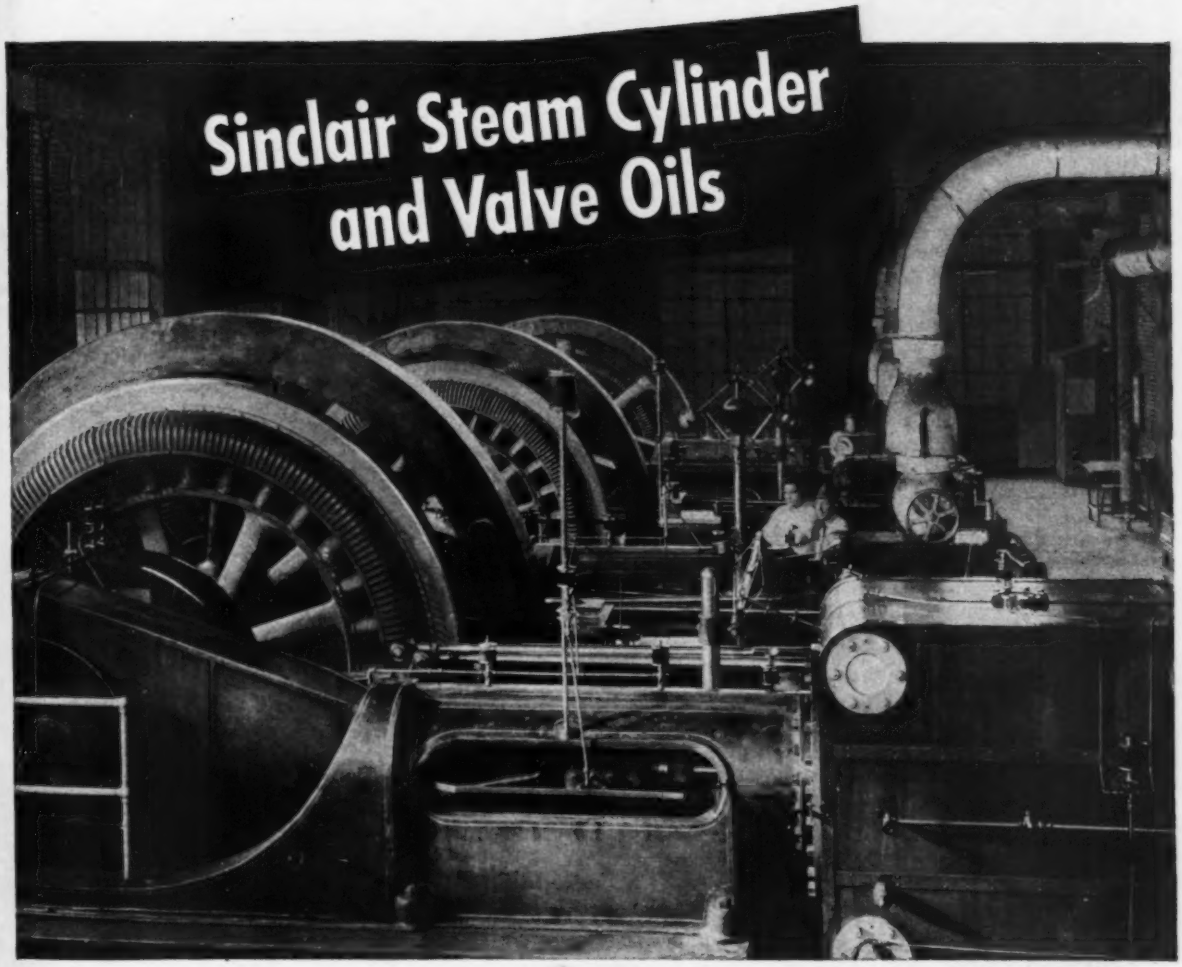

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Sinclair *Steam Cylinder* and *Valve Oils* are made to provide dependable efficiency under *all* speed, temperature, pressure and moisture conditions, and other influences that affect lubricating performance.

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FOR FULL INFORMATION OR LUBRICATION COUNSEL WRITE SINCLAIR REFINING COMPANY, 630 FIFTH AVENUE, NEW YORK 20, N. Y.

New England TAPPI Learns of Bleaching Developments

Recent developments which have given the textile industry a time-saving process for scouring and bleaching cotton and rayon fabrics were reviewed last night by R. L. Carr at a meeting of the New England Section of the Technical Association of the Pulp and Paper Industry. The meeting was held October 18, at the Roger Smith hotel, Holyoke, Mass.

"During the past ten years textile finishing plants have been given a new method for the continuous preparation of rayon and cotton fabrics," Mr. Carr said. "In this new method, it is possible to take cloth from the gray room and in 1 to 3 hours have it completely free from motes, white, and ready for finishing. This process has been made possible by the development of the jay-box steamer and the conveyor-type open-width steamer."

Scouring was formerly a batch process, Mr. Carr explained, and, with the great increase in demand for all types of cotton and rayon fabrics, especially upon the advent of war, a continuous process had to be found to speed up the preparation of fabrics. The equipment development to meet this need has not only speeded up the treatment of goods, with resulting increase in production capacity and reduction in processing costs, but has improved the quality and uniformity of the finished fabrics.

The conveyor-type steamer described by Mr. Carr was first introduced to the textile industry by The Mathieson Alkali Works about two or three years ago and made possible the continuous preparation of any weight of cloth in the open width.

Two talks were given at the technical meeting which followed the regular dinner. The first was given by Dr. John Pollard of the American Cyanamid Company who spoke on the fundamentals of cellulose chemistry. Illustrating his discussion with slides, Dr. Pollard presented the modern concepts of the organic chemistry involved in the basic structure of cellulose and the structure of the fiber.

The following attended the dinner and technical session: J. J. Aid, C. Anderson, C. J. Backus, J. P. Bainbridge, A. T. Barrett, R. T. Bingham, Maurice Blew, J. M. Booth, Seymour Borowsky, Chester Bowers, E. M. Brennan, J. G. Bullard, O. Callighan, R. L. Carr, F. E. Canton, R. C. Charron, E. T. A. Coughlin, L. W. Crouse, George Cushine, Christopher Davitt, Clarence Decker, Peter Della Luna, Paul Donaghy, A. L. Dubeau, F. R. Filz, Wm. Foote, Arthur Frey, A. C. Gault, Val Gooding, D. H. Gutermann, H. P. Hall, M. P. Healy, Jr., Paul Hilli, M. S. Hobart, C. R. Horton, W. S. Houston, O. F. Hutchinson, Dr. Werner Kaufmann, D. J. Kennedy, P. J. Kennedy, Helen U. Kiely, R. E. Kiety, Wm. Kirby, A. P. Kraus, W. S. Kumalod, C. G. Landes, Alfred A. Lant, H. S. Leonard, A. C. Loomis, J. H. Loomis, L. F. Loutrel, Eugene Lovergne, Margaret Lynch, J. D. Mahoney, John Marrone, Irving Mattson, Keith Max, John McGarry, Howard Meinke, H. L. Mellen, H. R. Miller, Alfred Montagna, L. S. Morse, R. H. Mosher, J. Mathews, C. E. Mueller, P. H. Muller, H. E. Murgatroyd, P. R. Nelson, H. J. Norton, J. J. O'Brien, Joseph O'Connell, John F. O'Leary, C. R. O'Neill, Robert O'Neill, F. W. O'Rourke, H. A. Otto, R. W. Pattison, Carl Peiffer, J. B. Pendleton, Freeman Perry, H. B. Petersen, John Phelps, J. D. Pollard, Bart Poppar, T. R. Probst, S. Quattroche, A. E. Regnier, T. A. Rowlands, G. C. Schmid, F. W. Schneider, Wm. Schramm, Richard Sinclair, N. G. Sixt, C. P. Slocum, A. L. Smith, Claude Smith, Harry Smith, Leon E. Smith, G. B. Stackpole, R. Staib, T. W. Stevens, E. W. Strecher, F. A. Strovink, John Studeny, Benjamin Sullivan, J. E. Sullivan, J. H. Sullivan, Ben Teale, L. B. Tucker, W. E. Wentworth, Howard Whitum, Frank Williams, Wm. Woosnam, J. Wright, C. J. Yarber.

Maine-New Hampshire TAPPI to Meet

The tentative program of the TAPPI Maine-New Hampshire Section, which will be held at the Eastland Hotel in Portland, Maine, on November 8th and 9th, will open with registration on Friday afternoon at 1:30 p.m. After a short business meeting the following papers will be presented:

"Sulphite Pulping of Hard Woods," by R. A. Webber, Brown Company.

"Use of Wood and Pulp in Plastics," by Dr. J. Seiberlick, University of New Hampshire.

The titles of two other papers to be presented will be announced at a later date.

The dinner speaker will be Dr. Edwin C. Jahn, New York State College of Forestry, who will discuss the pulp and paper mills in Scandinavian countries. On Saturday morning at 9:30 there will be a Symposium on Stock Refining. Dr. W. Boyd Campbell Director of Technical Research, Pulp and Paper Research Institute of Canada, will speak on the "Academic Aspects of Stock Pulp." W. V. Torrey of S. D. Warren Company will speak on "Pulp Evaluation and Classification." Following this there will be a round table discussion.

Saturday afternoon all who wish may go to the Bowdoin-Maine football game at Brunswick, Maine. Tickets to the football game must be obtained individually.

Barrell's Paper Annual

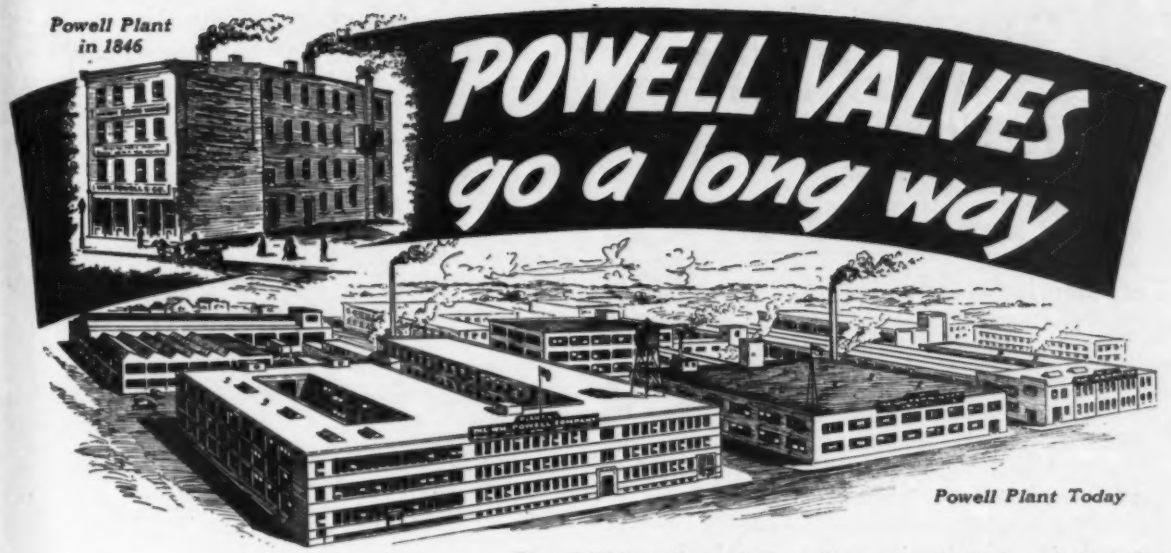
The 1946-1947 issue of Barrell's Paper Annual is being distributed. This novel loose-leaf book (6 x 9) has become one of the handy reference books available to the industry and serves a unique purpose in showing the lists of the officials of the principal associations of the pulp and paper industry.

This fifth annual volume is dedicated to the men of the industry, both in the services and outside, who in any manner contributed to victory.

In the introduction, the Barrell organization states: "We are proud to be affiliated with an industry which has done so outstanding a job as the manufacturers of paper and pulp. The accomplishments of this industry have well merited the acknowledgment reflected in the Certificate of Achievement presented to the Technical Association of the Pulp and Paper Industry "in recognition of exceptional accomplishments in behalf of the United States Navy and of meritorious contribution to the national war effort."

Continued in this year's Annual are three interesting articles: "The Dard Hunter Paper Museum" by W. B. Wheelwright; "Change, The Only Constant in Paper Technology," by R. G. Macdonald; and "The Paper Industry in Transmission from War to Peace," by E. W. Tinker.

The Annual is issued by the William L. Barrell Company, Lawrence, Mass.



Powell Valves *have gone* a long way since the celebrated Powell "Star" Regrinding Globe Valve was patented in 1865.

Today, with a notably complete line of valves, which includes every required type, size and design—in bronze, iron, steel and many corrosion-resistant metals and special alloys—Powell Valves *are going* a long way in meeting the flow control requirements of modern industry.

Above all, Powell Valves *go* a long way in actual service, because each valve is designed to give maximum performance under the actual operating conditions it will encounter.

Catalogs on request. Kindly state whether you are chiefly interested in Bronze, Iron, Cast Steel, or Corrosion-Resistant Valves.

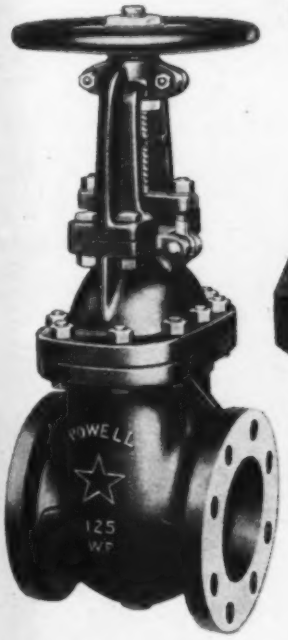


Fig. 1893—Flanged End O. S. & Y. Gate Valve for 125 pounds W.S.P. Has low nickel-iron body and yoke, with stainless steel seats, disc and stem. If desired, disc made of Ni-resist can be supplied.

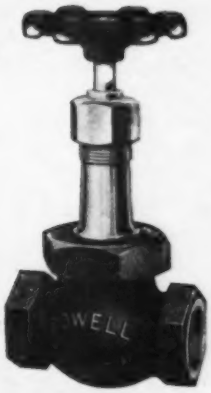


Fig. 190—150-pound Iron Body Bronze Mounted "Irenew" Globe Valve. Has screwed ends, union-bonnet, regrindable, renewable, wear-resisting "Powellium" seat and disc. Also available in All Iron for process lines.

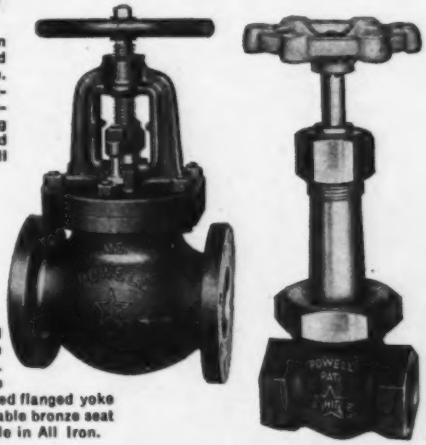


Fig. 241 — 125-pound Iron Body Bronze Mounted Globe Valve. Flanged ends, outside screw rising stem, bolted flanged yoke and regrindable, renewable bronze seat and disc. Also available in All Iron.

Fig. 375 — 200-pound Bronze Gate Valve with screwed ends, inside screw rising stem, union-bonnet, renewable, wear-resisting "Powellium" nickel-bronze disc.

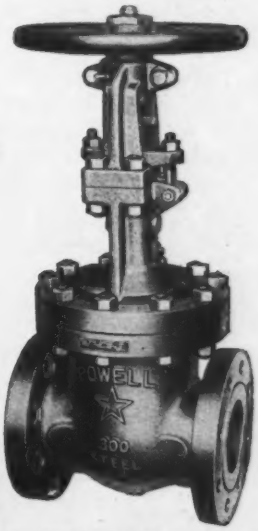


Fig. 3003—Class 300-pound Cast Steel Gate Valve with bolted flanged yoke, outside screw rising stem and taper wedge solid disc. Powell Cast Steel Valves of all types are available in pressure classes from 150 to 2500 pounds, inclusive.

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PAPER TRADE JOURNAL

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W. L. Cook, Editor

Exports

Each, according to his immediate interests, will have his own views on the qualities and characteristics of a well-rounded economy. The merchant, with his purely local interests, will be concerned mainly with his market and the community in which he moves. His problem of supply, at times, may press on his attention, but he is mainly concerned with supply as something which he will turn into profit. The manufacturer, in a period of heightened demand, will concern himself with problems of production, and will regard his supply as a vitally necessary element in the production line. To each, understandably, the pressure of immediate interests is such that facts which are of demonstrable value may be overlooked, even resented. But the force of their truths continues to live; the importance of recognizing them and of planning to use them to advantage loses none of its promise of later benefit.

So it may be with exports. In a period when rumor, often unfounded, gives rise to circumstantial stories, when statistics too easily become the tools of propaganda, when even Government arbitrarily takes a hand in the disposal of manufactured products, the tendency to magnify exports into something hideous and hostile is as threatening and as destructive as is every other human quality that gets out of hand. Actually, it can be shown, exports are as salutary to the balanced ecnomy as any other normal business activity.

In fact they may be exceedingly helpful to the domestic market. More than one large industrial enterprise has been helped to its present size, and its present ability to operate economically, because of that extra percentage of its manufacturing facilities which serve foreign markets. The facts and figures of the paper exporting business are told at greater length on another page by J. Francis Strub. The influence and effect of them he also told recently in a talk before a group of paper manufacturers.

If, he pointed out, the prewar United States export trade of all commodities representing 15 percent of our total production meant the difference between profit and loss, consider how this would have improved the paper manufacturer's lot had he been export-minded when our exports of paper were barely over one percent of our total production and even less than one percent of productive capacity. Would there have been need for the industry on the whole to have shut down at least thirty percent of its productive capacity? Idle machine hours that were the equivalent of shutting down every paper machine in the country for 7 hours out of every 24 hours.

Then he told how a western paper manufacturer had informed him that for many years between wars their export trade equalled thirty percent of their production. This was a fairly large enterprise, which has had a continuous record of successful operations.

Another paper manufacturer declared that he too had decided within his organization that they would always export a part of their production, not because they liked the foreign markets better than the home market, or because they preferred their export customers to their home market customers, but for the simple reason that over years it pays. His organization, through the worst years of the depression, continued to export considerable quantities of paper overseas. His operations were at or near full capacity and it requires no expert cost accountant to determine that if overhead and wages are covered by a production ratio of eighty percent the remaining twenty percent must be clear profit less the cost of raw materials and direct expenses. Perhaps this point becomes more convincing to most manufacturers who today are producing and selling their products at a smaller unit margin of profit and are able to close their books at the end of the year with a better balance sheet than was possible for so many years before the war.

The most important benefit to be derived from the development and maintenance of an American paper export trade must eventually pay off. A steady demand in the export market for your brands or grades of paper adds another string to your bow. If some of our outstanding paper manufacturers have, as a matter of deliberate policy, continued to export through depression as well as boom years with a marked degree of success why then should it not prove equally beneficial to the paper industry as a whole to set aside some part of their production for export?

It is most important to bear in mind that a steady flow of exports must be maintained. As is true in your domestic business, it is no more possible in the export field to turn this on and off as with a faucet. This is a fallacy that is, unfortunately, all too prevalent in the minds of paper manufacturers. Many consider that export is a stream into which production can be piped when demand in this country trickles off, and that as soon as a steady domestic demand is again resumed it can be cut off without further consideration. Such a policy is disastrous to the maintenance of a satisfactory export trade.

Calendar of Coming Events

November 7-8, 1946—National Paperboard Association Annual Meeting, The Waldorf-Astoria, New York City.

TAPPI Notes

The TAPPI Ohio Section will meet at The Colony in Middletown, Ohio on Thursday, November 7th at 6:45 p.m. The subject for consideration will be "Is There an Answer for Wet Strength Waste."

Otto Heijne is now managing director of Munksjo A/B and Lagamills A/B, Jonkoping, Sweden.

G. Bireben, general manager of Mendia S. A., papelera del Urumba, Hernani, Spain is visiting mills in the United States.

P. A. Paulson, consulting engineer of Appleton, Wis., is now in Long Beach, Calif. (Lock Box 1768).

Col. William A. Kelley (Spike) of Milwaukee, Wis., formerly with E. D. Jones & Sons is now special assistant to Clinton F. Robinson, Vice Administrator of the War Assets Administration, Washington, D. C.

Frank W. Egan, formerly of the John Waldron Corporation, is now a coating consultant at 615 Church St., Bound Brook, N. J.

C. W. Converse, formerly beater engineer and chemist, Hopper Paper Co., Reading, Pa., is now sales engineer, Valley Iron Works Co., Appleton, Wis.

Lt. J. O. Boesinger, formerly with the Chemical Warfare Service, is now assistant chemist, Mead Corporation, Harriman, Tenn.

George W. Shaw, formerly deputy general manager, Bowaters Newfoundland Pulp and Paper Mills, Ltd., Corner Brook, Newfoundland, is now general manager, Edward Lloyd Ltd., Sittingbourne, Kent, England.

Errata: On page 37 of the Paper Trade Journal for September 19, 1946 under TAPPI Notes there is a paragraph referring to TAPPI Standard T 220m Physical Testing of Pulp Handsheets. This is in error. The note published does not refer to T 220m but does refer to T 205m-45, Forming Handsheets for Physical Tests for Pulp.

Production Ratio Report*

(Production as per cent of six-day capacity)

COMPARATIVE WEEKLY SUMMARIES

Current Weeks—1946		Corresponding Weeks—1945	
September 7	86.7	September 8	75.9
September 14	105.1	September 15	94.0
September 21	105.8	September 22	94.3
September 28	106.6	September 29	98.1
October 5	107.2	October 6	94.1
October 12	*105.9*	October 13	96.2

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1945	86.7	89.4	90.2	88.1	89 8	91.2	80.8	88.6	90.2	95.9	95.5	91.0	89.7
1946	94.7	98.4	104.4	102.7	100.7	104.6	94.0	104.7	*101.3*				

COMPARATIVE YEARLY SUMMARIES

	1939	1940	1941	1942	1943	1944	1945	1946
Year to Date	80.5	86.2	95.6	92.0	88.3	88.2	88.6	*100.7*
Year Average	83.4	85.6	97.4	90.4	87.8	88.1	89.7	

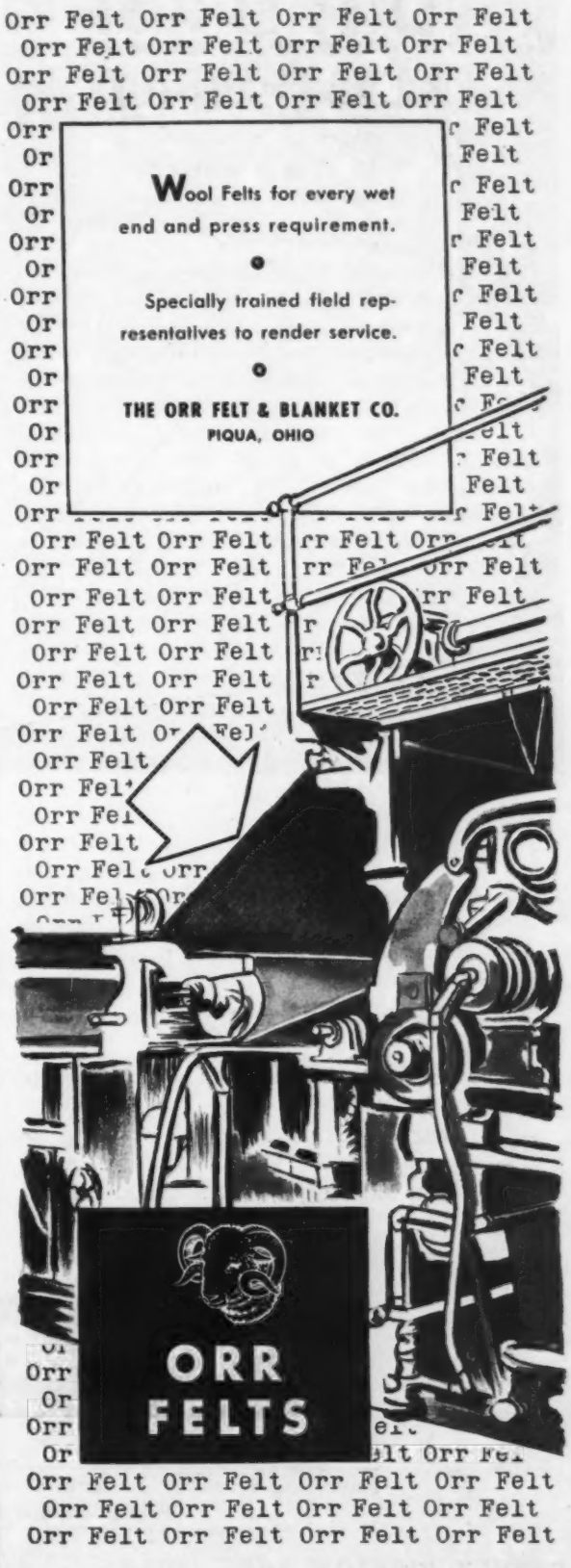
* Based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

PAPERBOARD OPERATING RATIOS†

Current Weeks—1946		Corresponding Weeks—1945	
September 7	83	September 8	80
September 14	101	September 15	96
September 21	100	September 22	93
September 28	101	September 29	96
October 5	100	October 6	95
October 12	99	October 13	97

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1945	91	95	97	97	96	96	86	90	91	97	95	85	93
1946	90	97	100	99	94	97	89	99	96				

† Per cents of operation based on "Inch-Hours" reported to the National Paperboard Association.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122 E. 42nd St., New York 17, N. Y.
Edited by R. G. Macdonald, Secretary

Forecasting Printability By Oil Absorption Measurements*

By V. V. Vallandigham[1]

Abstract

Since the receptivity or resistance of a paper surface to printing ink vehicles is a factor of major importance in controlling the printability of that sheet, a test apparatus to measure that property would be very useful in evaluating papers and aid in the selection of the proper type printing ink.

The Photo Electric Absorption Meter was developed by the author to evaluate the degree of efficiency of paper surface sized with an oil resistant material. Test results are given for several papers to indicate the usefulness of the instrument.

Oil absorption, formation, smoothness, and picking are all factors affecting the printability of a sheet. Compressability and softness are also factors, however, the author prefers to include them under the property of smoothness. It is interesting to note that all of these characteristics have to do primarily with the sheet surface and it is this part of a sheet of paper that has the greatest influence on printability.

With the importance of sheet surface in mind it can readily be seen that most paper is either written upon or printed upon and in this respect its yardage is more important than its tonnage.

After paper is made there is no known method which can alter its printing quality to any great degree without changing some other specification of the sheet. Printing inks do have more latitude. They can be altered or adjusted. However, they too have their limitation and can not correct all the defects in a sheet surface to all degrees.

As long as a piece of paper is made to specification, such as: caliper, brightness, color, strength, etc., it is believed that more consideration should be given to its printability at the mill.

The receptivity or resistance of a sheet surface to ink is a factor of major importance in controlling the printability of that sheet. Therefore, a test that could effectively evaluate this characteristic and permit a correlation with printing results, would enable the paper manufacturer to produce and control the making of a sheet to definite printing standards.

Some time ago the author was interested in determining the difference in efficiency and concentration of sizings applied to a sheet surface. His interest concerned resistance to ink penetration when printed with gloss ink. It was at this time that he had an opportunity to use the various known test methods for evaluation of a surface for oil penetration. Results showed no correlation between them.

In order to check a paper for printability at the time of manufacture, the test should evaluate only its surface, it should be free from human error, it should not fluctuate with variation in sheet color, it should give consistent results which correlate with printing and require only a few minutes to obtain. For these reasons and other, the Photo Electric Absorption Meter was developed.

It is not the intent nor the purpose of this paper to prove which surface characteristic is more important—whether it is oil penetration or smoothness. The following curves, however, show how the measurement of oil penetration on different types of paper correlates with printing results.

The sheet surfaces are not only varied but the types of ink are different—one being designed primarily for gloss ink printing and the other for halftone printing. One ink requires a resistant surface, the other a uniformly absorptive surface.

It is not necessary to have a very high resistance for gloss ink printing, nor is it necessary, on the other hand, to have a very porous surface for halftone printing. It is important, however, to have a surface that is uniform in its oil absorption and that this absorption is controlled and is consistent during manufacture.

Papers Tested

Clay Coated

Figure 1 shows the curves of oil resistence of four clay coated sheets. It will be noted upon examination that the curve of sheet A has a very high degree of oil resistence. Sheets B and C have similar curves of resistence, although C does show that it will absorb oil a little faster. Curve D represents a sheet which has very little oil resistence. It shows almost immediate oil absorption. These four sheets were cut into strips. A strip from each sheet was placed side by side and the four samples thus arranged were built up to identical caliper and run through a proof press.

A gloss ink was used for proofing. Five different sets of sheets were run consecutively in order to get sheets with a diminishing supply of ink on them. The fifth set contained more nearly the proper

* Presented at the Annual Meeting of the Technical Association of the Pulp & Paper Industry, Hotel Commodore, New York, N. Y., Feb. 25-28, 1946.

[1] Member TAPPI; Chemist, Kelco Co., Chicago, Ill.

amount of ink, so finished gloss ink tests were made upon it by placing the four samples under a gloss meter and taking the readings from the surface of the ink. To the eye, sheet A showed an extremely high uniform gloss. It had a gloss reading of 96. Sheet B showed a very good gloss and was uniform. However, its gloss meter reading was only 86. Sheet C would also be considered good for gloss ink, although a slight difference was detected visually. The gloss meter reading of the sheet was 80. Sheet D showed no gloss. Its reading was 26. It will be noted that these readings correlate directly with the curves of their oil resistance. This same set of sheets was then printed on the proof press by using a halftone cut and a suitable black ink. A halftone ink depends upon a uniform peneration. Best results with such ink can be obtained only by placing it on a sheet having uniform porosity.

By examining the print on Sheet A it was found that the resistance was high and filling of the screen was noted in the halftone and the high lights. Sheets B and C gave very good results, having a clean halftone and clean highlights, and a good uniform black. Sheet D which had the highest rate of absorption apparently absorbed the ink so fast that it ran down into the sheet leaving the areas which should have been deep black a shade of gray. The highlights and halftones however, were very clean. It was decided therefore, that sheets B and C gave the best over all printing results for this ink.

Upon comparing the results of both types of printing on sheet B it will be noted that it not only gave good gloss ink printing results but good halftone reproduction as well. Sheet A gave the best results on gloss ink printing; however, its halftone reproduction was poor. Sheet D gave very poor gloss ink reproduction and poor halftone reproduction. On the basis of these tests it could be concluded that sheets showing an oil penetration similar to B could give uniform results for either type of reproduction.

Figure 1 also shows two curves of clay papers both of which were used for halftone reproduction. The actual prints on the proof press showed that the sheet represented by curve E gave by far the best printing results. It reproduced the halftones well, with a good rich black for the background. Sheet F was mottled and the blacks were in tones of gray, showing that the sheet represented by curve F had too high an oil resistance to absorb the ink uniformly. Sheet E showed good uniform ink reception.

Cover Stock

Figure 1 contains the curves of oil resistance of two clay coated sheets used for magazine cover stock and were taken from an actual problem in lithograph printing. In this instance, the two sheets were being printed with the same ink. The ink on one sheet continued to be rubbed off after a week of time. The other sheet showed that the ink had set properly. The sheet exhibiting the poor property is represented by curve G. This curve shows that the surface of the sheet is too resistant for normal penetration of the ink to enable the ink to set properly. On the other hand, the sheet represented by curve H shows a normal rate of penetration for the ink. The ink was absorbed with proper set and without smearing. If these two sheets could have been evaluated prior to printing possibly the necessary adjustments could have been made in the ink used on the sheet represented by curve G and the proper setting would have been produced. The curves for these clay coated

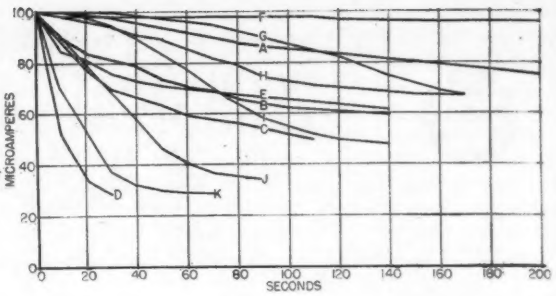

Fig. 1

sheets come to equilibrium at 67 which is the base gloss of the sheets tested. The author would like to point out at this time that the time of initial break through of the oil into the sheet surface is the critical instant of surface evaluation. If for instance an attempt had been made to evaluate these sheets by checking the total time for oil absorption, it will be noted that we would have given the two sheets the same value. However, by examining the curves, it will be noted that the difference is seen, to the greatest degree, in the first point rather than at the end.

Patent Coated Board

Figure 1 shows the curves of oil resistance on white patent coated board for gloss ink printing. Curves I and J show different rates of resistance of the same sheet because of different size formulations being used, although the sheets themselves were made on the same run within a few minutes of one another. These sheets sent out for gloss ink printing showed no significant difference in finished gloss because the ink had been selected to do a good job on the sheet represented by the lowest curve which was J. Therefore, any sheet having a higher degree of resistance could show no improvement. In a situation of this kind the ink could have been reduced for a sheet showing a resistance as noted by curve I, or the size could have been reduced to the point where it was similar to curve J. If the ink had been selected to fit the sheet represented by curve I, the sheet represented by curve J would have been far below standard in printing results. Curve K merely represents these sheets prior to sizing. It is used in this case as a control.

Instrument

The Photo Electric Absorption Meter was developed about a year ago primarily to evaluate the degree of efficiency of various sheets surface-sized with an oil resistant material. This instrument consists of a projection lamp and condenser lenses mounted in such a way as to cast a beam of light on a sheet surface at an angle of 22°. The light is then reflected in a straight beam through an iris diaphram into a photoelectric cell connected to a microammeter. By casting a thin film of oil on the surface of a sheet of paper and placing it in the path of the beam of light so that the light from the projector is reflected off of the oil film into the photo-electric cell it is possible to read the gloss of the oil surface. As this oil film gradually disappears below the surface of the sheet, the light beam reflected into the photo cell by the surface of the oil is lost, thus the meter reading is lowered in direct proportion to the loss of oil into the sheet surface.

This is a means of measuring the penetration of

oil into the sheet surface which will give a reading in numerical terms. This function alone, although important, is not sufficient in the evaluation of the sheet. It also is necessary to know the rate at which the oil disappears below the sheet surface. Plotting this loss of light against time gives a direct picture of the penetration of the oil into the sheet. Total penetration is determined by the point at which the meter comes to rest and reads the basic gloss of the sheet. Readings are taken every ten seconds from the instant the oil film is cast until total penetration is observed.

By the use of an instrument of this kind it is readily seen that the rate of penetration rapidly fluctuates in direct proportion to the thickness of the oil film. It is therefore, of vital importance that the testing oil is uniform and that the film is cast at a uniform depth. For this reason the testing oil selected was Stanolind White Mineral Oil (U. S. P.-Heavy) Standard Oil Company.

In order to eliminate varying thicknesses of oil, it was decided to spread the drop of oil at a uniform speed and to a uniform depth by allowing a steel roller to go down an inclined plane. An angle of inclination of 1.50 was found satisfactory to use with the grade of mineral oil selected. The roller used to spread the drop is of stainless steel, and is 4⅜ inches in diameter, 4 inches wide, and weighs 8 pounds.

Light mineral oil was tried, but its rate of penetration was too fast to give good reading. Readings in the vicinity of 2 or 3 minutes are preferred.

It was decided to place the drop of oil 6 inches from the point of contact of the roller to the sheet surface and allow it to set for 5 seconds in order to form a constant pattern. Upon release of the roller, the drop of oil is spread into an elliptical pattern and the sheet is ready to be placed in the meter for evaluation.

New TAPPI Members

The Executive Committee of the Technical Association of the Pulp and Paper Industry has elected the following to membership:

James M. Burt, Technical Director, Hurlbut Paper Co., South Lee, Massachusetts, a 1939 graduate of Norwich University.

Daniel J. Frese, Representative of Mallinckrodt Chemical Works, New York, New York, a 1933 graduate of the University of Connecticut.

C. E. Hoekstra, Chief Engineer, The Magnavox Company, Fort Wayne, Indiana, a 1934 graduate of the University of Nebraska.

Shelton M. Johnson, Acting Director, Wood Research Institute, Oglethorpe University, Georgia, a 1943 graduate of Georgia Institute of Technology.

Morris W. Kane, Chemist, Kalamazoo Vegetable Parchment Co., Parchment, Kalamazoo, Michigan, a 1932 graduate of the University of Cincinnati.

Alfred O. Mortenson, Chief Operating Engineer, Florida Pulp and Paper Co., Pensacola, Florida.

Robert A. Sloman, Squad Leader and Designer, The Pusey & Jones Corp., Wilmington, Delaware.

Rowland P. Smith, Head of General Analytical Laboratory, American Cyanamid Co., Stamford, Connecticut, a 1922 graduate of Massachusetts State College.

Harold F. Stose, Research Chemical Engineer, Radio Inventions, Inc., New York, New York, a 1921 graduate of Massachusetts Institute of Technology.

Sudhakar A. Trivedi, Student, Department of Chemical Engineering, University of Wisconsin, Madison, Wisconsin, a 1944 graduate of Bombay University, India.

George W. Batchelder, Technical Director, The F. G. Findley Co., Milwaukee, Wisconsin, a 1932 graduate of the University of Wisconsin.

William C. Bauer, Assistant Professor, Department of Chemical Engineering, Massachusetts Institute of Technology, Cambridge, Massachusetts, a 1941 graduate of the Massachusetts Institute of Technology.

Elmer E. Davis, Superintendent, Crown Willamette Paper Co., Lebanon, Oregon.

Ray C. Gralow, Technical Service, Corn Products Refining Co., New York, N. Y., a 1934 graduate of the University of Wisconsin.

Bengt S. Halling, Engineer, Hafrestroms Aktiebolag, Haverud, Sweden, a 1936 graduate of Stockholm Tekniska Institut.

Alfred W. Hoffman, Laboratory Manager, Container Testing Laboratories, Inc., New York, N. Y., a 1935 graduate of Columbia University.

William C. Huebner, Owner and Director, Huebner Laboratories, New York, N. Y.

Francis H. Ludwig, Trainee through courtesy of Pacific Mills Ltd., under sponsorship of Department of Veterans' Affairs, Ocean Falls, B. C., Canada, a 1935 graduate of the University of Alberta.

Theodore R. Naffziger, Chemical Engineer, Northern Regional Research Laboratory, Peoria, Illinois, a 1931 graduate of Iowa State College.

Shirley R. Parsons, Chemist, Consolidated Water Power & Paper Co., Wisconsin Rapids, Wisconsin, a 1941 graduate of the Institute of Paper Chemistry.

Guy E. Plaisted, Application Engineer, Industrial Engineering Division, General Electric Co., Schenectady, New York, a 1920 graduate of the University of New Hampshire.

Leslie E. Preble, Chemical Engineer, Marcal Pulp and Paper Co., East Paterson, New Jersey, a 1917 graduate of the University of Maine.

Harold T. Randles, Chemist, Taggart Corporation, Watertown, New York, a 1933 graduate of Syracuse University.

Lester H. Sebora, Chemist, Marathon Corporation, Menasha, Wisconsin, a 1934 graduate of Ripon College.

James C. Shaw, Chief Engineer, American Coating Mills, Inc., Elkhart, Indiana, a 1928 graduate of the University of Pennsylvania.

Richard E. Smith, Junior Chemist, Canadian International Paper Co., Gatinequ, P. Q., Canada, a 1945 graduate of McGill University.

Richard W. Stephens, Design Engineer, A. B. Dick Co., Chicago, Illinois. He attended Denison University and Northwestern University.

Kristian Fougner, Student, University of Maine, Department of Chemical Engineering, Orono, Maine, a 1945 graduate of the Technical University of Norway.

Henry Ostrowski, Assistant Technical Supervisor, Pacific Mills, Ltd., Ocean Falls, B. C., Canada, a 1936 graduate of the University of Toronto. He was formerly employed by Hollinger Gold Mines, Timmins, Ont.; J. R. Booth Ltd., Ottawa, Ont.; Abitibi Power and Paper Co., Smooth Rock Falls, Ont.; Bowater's Newfoundland Pulp and Paper Co., Corner Brook, Newfoundland; Somerville Ltd., London, Ont.

Herbert T. Peterson, Weyerhaeuser Timber Co., Pulp Division, Instrument Engineer, Longview, Washington, with this company since 1931.

Effect of Continuous Liquor Flow in Pulping By the Sulphate Process*

By S. L. Schwartz[1] and Mark W. Bray[2]

Abstract

Sulphate pulping experiments on Douglas fir (Pseudotsuga taxifola) *and aspen* (Populus tremuloides) *at the Forest Products Laboratory have shown that standard 5/8-inch chips can be completely reduced to pulp in an extremely short time by allowing preheated cooking liquors to flow continuously through a digester charge during the entire cooking period. This procedure reduced the temperature-rise period to approximately 20 minutes, but the pulping rate varied with the type of wood and the concentration, sulphidity, and rate of flow of the cooking liquor. With a concentration of 90 grams per liter and a maximum temperature of 170° C., Douglas fir kraft pulp was produced in as short a total cooking period as 35 minutes and bleachable sulphate pulp was produced in 50 minutes. Aspen was pulped even more easily. At a concentration of 45 grams per liter and a temperature of 170° C., a 50% yield of easy-bleaching sulphate pulp of relatively high alpha-cellulose content (88.6%) was obtained from aspen in 35 minutes total cooking time. A reduction in sulphidity from 33.9 to 10.2% in the cooking liquor reduced its lignin-removal efficiency but this effect was more noticeable with Douglas fir than with aspen. The reduction in the rate of liquor flow also reduced the pulping rate.*

Since the maximum digestion temperature is attained in experimental digestions in 15 to 20 minutes and since the concentration of chemicals in the cooking liquor remains practically constant throughout the digestion period, the pulping of the wood chips is performed in a shorter time than is consumed in the customary batch process. Further, the large volume of liquor passing through the digester causes a rapid removal of soluble lignin-reaction products and pulp-discoloring substances from the sphere of reaction. Lighter-colored unbleached pulps of easier-bleaching characteristics and lower pentosan and higher alpha-cellulose contents than those obtained by ordinary sulphate-pulping methods result.

The cooking time could be further reduced by the use of higher temperatures, concentrations, and rates of flow than those given. While the use of a continuous flow of liquors in pulping indicates means for reducing cooking time and for producing pulps of higher purity with respect to alpha-cellulose, pentosan contents, and bleachability than present commercial methods, its practical application largely depends upon utilization of active chemicals remaining in the cooking liquor after passing through the digester.

Concentration of chemicals in the cooking liquor has been shown to be an important variable affecting the rate the pulping by the sulphate process (*4*). It is evident that a continuously decreasing concentration as the cooking proceeds in a commercial operation will have an adverse effect on the progress of the pulping reaction. Although injection of chemical during cooking has been suggested as a means of maintaining a constant concentration during the entire period of digestion, a continuous flow of preheated liquors through the digester would appear to offer certain advantages. First, the use of cooking liquors heated to the maximum cooking temperature prior to introduction into the digester practically eliminates the need for a temperature-rise period. Second, preheating the cooking liquor facilitates absorption of chemicals by the chips by increasing the removal of air from the chips and digester and by increasing the movement of chemicals into the chips by the forces of capillarity and diffusion (*5*). Third, maintenance of a constant concentration throughout the entire cooking period by this means combines the advantages of pulping with relatively large liquor ratios and of removing from the sphere of reaction the spent liquors and byproducts of digestion as rapidly as they are formed. Finally, this method of cooking affords better control of the process and also provides a means of studying certain variables of the sulphate process

* Presented at the Annual Meeting of the Technical Association of the Pulp & Paper Industry, Hotel Commodore, New York, N. Y., Feb. 25-28, 1946.

[1] Member TAPPI; Engineer, Forest Products Laboratory,[3] Forest Service, U. S. Department of Agriculture.

[2] Member TAPPI; Chemist, Forest Products Laboratory,[3] Forest Service, U. S. Department of Agriculture.

[3] Maintained at Madison, Wis., in cooperation with the University of Wisconsin.

TABLE I.—PHYSICAL AND CHEMICAL PROPERTIES OF DOUGLAS FIR PULPWOOD FROM SHIPMENT 1528 AND ASPEN PULPWOOD FROM SHIPMENT 1537

Species	Tree Log and Sector[1]	Relative Height Above Stump, %	Diameter, in.	Age, yr.	Rate of Growth, rings per in.	Specific Gravity[3]	Density, lb. per cu. ft.[3]	Moisture Content of Wood, %	Proportion by Volume: Heartwood, %	Proportion by Volume: Summerwood, %	Bark by Weight, %[2]	Chemical Data: Cellulose, %	Chemical Data: Alpha-Cellulose, %	Chemical Data: Lignin, %	Pentosans: Total, %	Pentosans: In Cellulose, %	Solubility in: Alcohol-Benzene, %	Solubility in: Ether, %	Solubility in: 1% NaOH, %	Solubility in: Hot Water, %
Douglas fir	3-9	50	13.9	42	6.1	0.439	27.4	42.0	58.9	29	9.2	56.6	43.1	29.2	8.7	5.9	3.4	0.9	14.4	4.4
Douglas fir	4-10	50	12.7	37	5.8	0.400	25.0	43.2	59.8	29	10.9	62.8	48.0	25.5	7.5	5.7	2.6	0.9	13.1	3.3
Aspen[4]	....	..	7.3	36	10.4	0.362	22.6	27.6	21.9	..	...	66.3	48.6	17.4	18.1	22.7	2.8	1.5	16.6	2.4

[1] Logs were 4 feet long and numbered consecutively beginning with the butt log.
[2] Some bark was lost in transit and handling.
[3] Moisture-free weight per green volume.
[4] Average of six logs selected for pulping.

under constant conditions. Data thus obtained should be of value in determining effects under various continuous-flow conditions; for example, those existing in the countercurrent process described by Haslam and Ryan *(1)* and others *(2, 6, 7)*.

The data here presented show the effects of some of the variables of a continuous liquor flow alkaline-pulping method, including chemical concentration, pulping time, sulphidity, and rate of flow on yield and pulp quality and on rate of delignification. Comparisons are also made between the results from the continuous liquor flow and the customary batch methods of alkaline pulping.

Materials

Five-eighths-inch chips prepared from Douglas fir (tree 3, bolts 7, 9, 10, and 11, shipment 1528) thoroughly mixed, were pulped in this study. For comparison additional digestions were made on chips from another tree (tree 4, bolt 10) of the same shipment and from aspen wood of shipment 1537. Physical and chemical properties of the woods are given in Table I.

Because of its high lignin content, prior pulping experiments by the batch method on this shipment (1528) of Douglas fir gave somewhat unsatisfactory results but, for comparison of the two pulping meth-

TABLE II.—SULPHATE PULPING OF DOUGLAS FIR (*PSEUDOTSUGA TAXIFOLIA*) BY A CONTINUOUS LIQUOR-FLOW METHOD. EFFECT OF CONCENTRATION ON YIELD AND PULP QUALITY (TREE 3, SHIPMENT 1528)

	Cooking and Yield Data [1]					Interpolated Beater Strength Data on Unbleached Pulp. Tests Made at 72° F. and 65% Relative Humidity						Bleach Requirement				Chemical Characteristics						
			Yield of Moisture-free Pulp										Ives Readings			Cellulose						
Digestion No.	Total Concentration of Chemical, g./l.	Duration at Maximum Temperature 170°C., hr.	Screened, %	Screenings, %	Total, %	Freeness (Schopper-Riegler), ml.	Time of Treatment, min.	Bursting Strength, pt./lb./ream	Tearing Strength, g./lb./ream	Folding Endurance, double folds	Tensile Strength, lb. per sq. in.	Solid Fraction, ratio	Standard Bleaching Powder Added to Pulp, %	Red, parts	Blue, parts	Green, parts	Total, %	Alpha, %	Lignin, %	Total Pentosans, %	Roe Number	Permanganate Number	Ash, %
1289	90.0	0.25	47.4	0.4	47.8	870	0	0.24	2.3	5	1,014	0.22	0	49	37	28	94.4	82.9	4.6	3.0	4.6	22.0	0.7
						700	56	0.82	2.6	1,300	5,000	0.40	20	80	67	55							
						550	76	0.90	2.2	1,230	6,000	0.44	25	84	75	64							
1290	90.0	0.50	43.4	0.1	43.5	880	0	0.24	2.4	1	680	0.21	0	55	42	36	95.8	83.8	2.3	2.2	2.5	14.2	0.7
						700	46	0.73	2.7	730	4,800	0.41	10	75	65	55							
						550	65	0.80	2.2	800	5,200	0.44	20	89	83	78							
1291	90.0	1.00	36.6	0.0	36.0	880	0	0.28	2.6	6	1,600	0.22	0	58	47	42	97.4	84.0	0.8	1.6	1.0	7.6	0.8
						700	40	0.68	2.1	340	4,400	0.39	10	88	84	78							
						550	54	0.68	1.7	225	5,200	0.44	15	88	86	83							
1292	90.0	1.50	33.2	0.0	33.2	860	0	0.31	2.7	10	1,115	0.22	0	66	56	51	97.8	82.2	0.3	1.2	0.4	4.4	0.6
						700	24	0.55	1.7	70	3,600	0.35	5	87	84	77							
						550	37	0.58	1.2	90	4,400	0.40	7	87	84	81							
1332	52.5	0.25	48.1	1.0	49.1	880	0	0.20	2.1	1	754	0.23	0	43	31	23	90.4	77.8	7.8	4.0	7.9	30.2	..
						700	61	0.90	2.6	1,380	5,600	0.41	25	69	52	27							
						550	89	1.00	1.9	1,275	7,000	0.45	..	..	..	..							
1294	52.5	0.50	45.4	0.3	45.7	880	0	0.26	2.2	[2] 11	1,050	0.24	0	50	37	29	93.5	80.5	4.6	3.3	4.6	19.7	1.2
						700	61	0.85	3.3	620	5,300	0.41	20	83	68	57							
						550	82	0.95	2.8	540	6,700	0.43	25	86	76	64							
1295	52.5	1.00	40.6	0.0	40.6	880	0	0.23	2.3	[2] 5	1,100	0.23	0	62	48	40	97.7	80.4	1.8	2.7	2.2	10.8	0.7
						700	49	0.80	3.0	710	5,400	0.39	10	85	77	78							
						550	66	0.89	2.6	800	6,700	0.43	20	92	90	84							
1296	52.5	1.50	39.0	0.0	39.0	870	0	0.24	2.5	5	1,020	0.25	0	64	51	44	97.5	85.2	0.4	2.2	1.1	7.1	1.1
						700	46	0.76	3.0	1,100	4,600	0.44	10	93	89	82							
						550	61	0.82	2.5	1,100	5,700	0.49	15	94	93	86							
1300	45.0	0.25	36.3	16.7	53.0	885	0	0.17	1.7	0	740	0.24	0	44	31	23	88.4	76.0	9.1	4.6	8.8	33.9	1.1
						700	66	0.84	2.9	1,350	5,800	0.43	20	61	43	31							
						550	86	0.95	2.3	1,750	6,700	0.47	25	64	48	35							
1301	45.0	0.50	46.8	0.3	47.1	870	0	0.25	2.4	6	1,037	0.25	0	49	36	30	92.3	80.6	5.1	4.0	5.0	22.4	1.0
						700	60	0.88	3.2	1,800	5,000	0.43	20	76	59	47							
						550	80	1.02	2.8	2,050	6,000	0.46	25	79	68	56							
1302	45.0	1.00	42.9	0.1	43.0	880	0	0.23	2.2	3	1,025	0.25	0	58	46	36	95.5	84.0	2.3	3.4	2.3	13.4	1.0
						700	58	0.85	3.6	1,760	4,600	0.42	20	88	82	76							
						550	78	0.94	3.1	1,710	5,400	0.45	25	92	87	82							
1303	45.0	1.50	40.9	0.0	40.9	870	0	0.24	2.4	4	1,083	0.26	0	61	50	41	96.0	84.3	1.0	2.5	1.9	9.1	1.1
						700	46	0.82	3.0	900	5,000	0.42	10	85	79	69							
						550	63	0.89	2.6	1,100	6,200	0.46	20	92	87	84							
1304	45.0	1.50	40.3	0.0	40.3	875	0	0.20	1.9	0	1,007	0.25	0	61	50	40	97.5	85.5	0.9	3.2	1.9	9.4	1.1
						700	52	0.80	3.1	980	5,000	0.42	10	85	78	70							
						550	72	0.88	2.7	1,140	6,400	0.46	20	92	89	85							
1305	45.0	2.00	39.1	0.0	39.1	875	0	0.23	2.3	1	1,205	0.25	0	66	54	48	97.6	85.4	0.2	3.0	0.6	6.8	0.9
						700	40	0.74	2.9	680	4,800	0.43	10	88	86	81							
						550	55	0.79	2.3	780	5,800	0.47	15	93	91	86							
1297	30.0	0.25	0.0	58.4	58.4	890	0	0.10	1.1	0	375	0.20	0	37	26	18	80.6	69.0	16.8	5.9	9.6	...	1.8
						700	82	0.78	2.2	880	4,600	0.39	..	..	..	..							
						550	102	0.90	1.8	1,080	5,600	0.44	..	..	..	..							
[3] 1298	30.0	0.50	44.3	8.6	52.9	890	0	0.19	1.7	1	665	0.21	0	45	30	23	89.0	76.0	9.0	5.4	9.1	34.6	1.1
						700	67	0.92	2.5	500	5,600	0.41	20	59	41	29							
						550	87	1.04	2.1	700	6,800	0.46	25	64	47	34							
1299	30.0	1.00	45.8	0.2	46.0	870	0	0.22	2.2	2	893	0.25	0	50	37	29	93.7	80.8	4.3	4.6	4.4	19.7	0.7
						700	55	0.88	3.4	2,000	4,800	0.41	20	80	68	57							
						550	77	0.98	3.0	2,500	6,200	0.44	25	87	77	67							
1306	30.0	1.50	42.8	0.0	42.8	880	0	0.21	2.1	0	990	0.25	0	58	45	38	96.4	85.1	1.9	4.3	2.1	12.6	1.0
						700	51	0.80	3.6	1,450	5,100	0.42	20	91	85	79							
						550	69	0.86	2.8	1,980	6,200	0.46	25	92	88	85							
1307	30.0	2.50	40.6	0.0	40.6	880	0	0.22	2.3	0	1,150	0.26	0	65	53	44	97.2	84.5	0.5	3.6	0.4	7.7	1.2
						700	50	0.79	3.5	1,080	4,600	0.42	10	89	86	79							
						550	67	0.89	2.7	1,600	5,400	0.47	15	93	89	85							
[4] 1266 1267 1268	49.6	1.50	46.4	1.5	47.9	880	0	0.17	1.6	1	790	0.25	0	35	21	19	92.5	78.1	5.6	6.4	6.1	28.9	..
						700	69	0.96	2.8	1,200	5,850	0.42	25	69	55	40							
						550	90	1.09	2.3	1,400	7,300	0.45	..	..	..	..							

[1] All digestions were made in a 3.7 gallon, steamjacketed, spherical autoclave. The cooking conditions other than those shown were as follows: Ratio of caustic soda to sodium sulphide, 2 to 1, respectively, equivalent to a sulphidity of 33.9%. Temperature increase period, 20 minutes. Rate of flow of cooking liquor, 0.25 gallon per minute.

[2] Folding tests run at 50% relative humidity.

[3] All strength tests made at 50% relative humidity.

[4] Digestion made by the batch process under the same conditions as the others except as follows: Total chemicals added per 100 pounds moisture-free wood, 19.83 pounds. Volume of cooking liquor (including moisture in chips), 48.0 gallons. Temperature increase period, 1.5 hours.

ods, the sample of wood was used in the present experiments.

Experimental Procedure

The digestion equipment used in these experiments is diagrammatically shown in Fig. 1. Approximately 75 gallons of sulphate cooking liquor of known composition were charged to the 14-cubic-foot steam-jacketed pressure vessel, A. The liquor, heated to approximately 180° C., was passed through the steam-jacketed pipe, B, to the steam-jacketed autoclave, of 0.5-cubic-foot capacity, C, charged with chips. The spent liquors from the autoclave were passed through a cooler, D, where they could be sampled before discharging to the sewer.

In all digestions employing a continuous flow of preheated liquors, the maximum temperature, 170° C., was attained in approximately 20 minutes, where it was maintained throughout the entire cooking period. For the customary batch digestions made for comparison, the temperature increase period was 1.5 hours. The steam jackets on the delivery pipe and autoclaves were connected in series so that the temperature of the contents of the autoclave could never exceed that of the incoming cooking liquor.

Four series of digestions of varying cooking times were made on Douglas fir chips from tree 3 with sulphate cooking liquors of the following concentrations: 90, 52.5, 45, and 30 grams per liter. The sulphidity based on the active alkali content of the cooking liquors in each case was 33.9%. The rate of flow of cooking liquor throughout the digestion period was approximately 0.25 gallon per minute, which permitted a sufficiently large volume of cooking liquor to pass through the digester, so that the desired concentration was maintained fairly constant during the cooking period.

Comparable digestions were made on Douglas fir chips of tree 4 and also on aspen chips. For aspen, the concentration was held at 45 grams per liter.

In addition, a limited number of experiments were made to determine the effect of sulphidity and rate of flow.

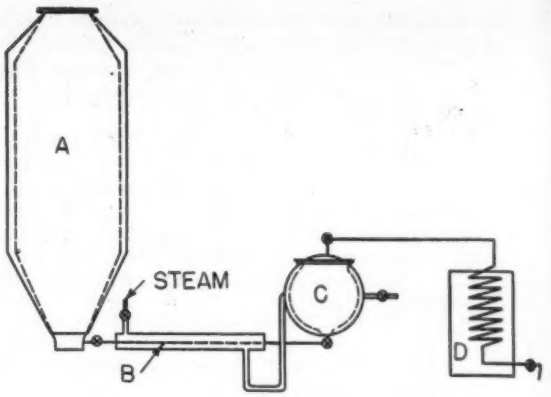

FIG. 1

Diagram of Laboratory Equipment for Pulping by the Continuous Liquor-Flow Method. A—Jacketed-Tank for Heating Cooking Liquors (14 cu. ft. Capacity). B—¼-Inch Steam-Jacketed Liquor Line. C—Steam-Jacketed Digester (0.5 cu. ft. Capacity). D—Spent Liquor Cooler.

Method of Testing the Pulps

The strength properties of the pulps were determined on test sheets prepared after processing according to TAPPI method T200 m-40, for definite intervals in a 1.5-pound standard test beater provided with a 6,500-gram weight on the bedplate. Bleaching tests were made on the pulps by treating 15-gram samples by a single-stage method with known amounts of bleaching-powder solutions. The color of the bleached and unbleached pulps was determined by an Ives tint photometer. Samples of unbleached pulps were analyzed for their cellulose (TAPPI method T201 m-37), alpha-cellulose (TAPPI method T203 m-44), lignin (TAPPI method T222 m-43), and pentosan content (Forest Products Laboratory Report R-19), and for their chlorine-absorbing power (TAPPI method T202 m-42). In addition, permanganate numbers of the various pulps were determined according to TAPPI method T214 m-37.

TABLE III.—SULPHATE PULPING OF DOUGLAS FIR (*PSEUDOTSUGA TAXIFOLIA*) BY A CONTINUOUS LIQUOR-FLOW METHOD. COMPARISON OF YIELD AND QUALITY OF PULPS OBTAINED FROM TREE 3, BOLTS 7, 9, 10 AND 11, AND TREE 4, BOLT 10

Cooking and Yield Data [1]						Interpolated Beater Strength Data on Unbleached Pulp. Tests Made at 72° F. and 65% Relative Humidity						Bleach Requirement	Ives Readings			Chemical Characteristics					
			Yield of Moisture-free Pulp													Cellulose					
Digestion No.	Tree No.	Duration at Maximum Temperature 170°C., hr.	Screened, %	Screenings, %	Total, %	Freeness (Schopper-Riegler), ml.	Time of Treatment, min.	Bursting Strength, pt./lb./ream	Tearing Strength, g./lb./ream	Folding Endurance, double folds	Tensile Strength, lb. per sq. inch	Solid Fraction, ratio	Standard Bleaching Powder Added to Pulp, %	Red, parts	Green, parts	Blue, parts	Total, %	Alpha, %	Lignin, %	Total Pentosans, %	Rue Number	Permanganate Number
1300	3	0.25	36.3	16.7	53.0	700	66	0.84	2.9	1,350	5,800	0.43	0	44	31	23	88.4	76.0	9.1	4.6	8.8	33.9
						550	86	0.95	2.3	1,750	6,700	0.47	25	64	48	35						
1315	4	0.25	49.1	2.8	51.9	700	77	0.89	2.6	1,100	5,600	0.42	0	42	28	21	86.9	75.8	9.4	4.8	8.7	...
						550	100	0.97	2.2	1,400	6,600	0.46	25	59	42	29						
1301	3	0.50	46.8	0.3	47.1	700	60	0.88	3.2	1,800	5,000	0.43	0	49	36	30	92.3	80.6	5.1	4.0	5.0	22.4
						550	80	1.02	2.8	2,050	6,000	0.46	25	79	68	56						
1316	4	0.50	47.3	0.1	47.4	700	53	0.87	3.4	1,300	5,400	0.41	0	50	35	27	91.8	79.7	4.9	4.8	5.3	21.9
						550	72	0.98	2.7	1,200	7,000	0.47	25	75	62	50						
1302	3	1.00	42.9	0.1	43.0	700	58	0.85	3.6	1,760	4,600	0.42	0	58	46	36	95.5	84.0	2.3	3.4	2.3	13.4
						550	78	0.94	3.1	1,710	5,400	0.45	25	92	87	82						
1317	4	1.00	44.4	0.0	44.4	700	48	0.87	2.9	1,200	5,200	0.43	0	58	44	36	95.1	83.5	2.2	4.0	2.4	13.2
						550	66	0.94	2.6	1,900	6,600	0.48	25	87	82	82						
1303						700	49	0.81	3.1	940	5,000	0.42	0	61	50	41	96.8	84.9	1.0	2.9	1.9	9.3
1304	3	1.50	40.6	0.0	40.6	550	68	0.89	2.7	1,120	6,300	0.46	20	92	88	85						
						700	47	0.77	3.1	880	5,400	0.41	0	60	48	40	95.8	83.9	1.4	3.7	1.0	8.8
1318	4	1.50	42.4	0.0	42.4	550	66	0.86	2.4	1,200	6,500	0.45	20	87	82	84						

[1] The cooking conditions other than those given were as follows: Temperature increase period, ½ hour. Rate of flow of cooking liquor, 0.25 gallon per minute. Sulphidity of cooking liquor (based on active alkali), 33.9%. Ratio of caustic soda to sodium sulphide, 2:1. Total concentration of chemicals in cooking liquor, 45.0 grams per liter.

TABLE IV.—SULPHATE PULPING OF ASPEN (*POPULUS TREMULOIDES*) (SHIPMENT 1537). COMPARISON OF BATCH AND CONTINUOUS LIQUOR-FLOW METHODS

Digestion No.	Shipment No.	Duration at Maximum Temperature 170° C., hr.	Cooking and Yield Data [1] Yield of Moisture-free Pulp: Screened, %	Screenings, %	Total, %	Interpolated Beater Strength Data on Unbleached Pulp. Tests Made at 72° F. and 65% Relative Humidity: Freeness (Schopper-Riegler), ml.	Time of Treatment, min.	Bursting Strength, pt./lb./ream	Tearing Strength, g./lb./ream	Folding Endurance, double folds	Tensile Strength, lb. per sq. inch	Solid Fraction, ratio	Bleach Requirement: Standard Bleaching Powder Added to Pulp, %	Ives Readings: Red, parts	Green, parts	Blue, parts	Chemical Characteristics: Cellulose: Total, %	Alpha, %	Lignin, %	Total Pentosans, %	Roe Number	Permanganate Number
						860	0	0.19	0.5	1	1,840	0.31	0	64	52	46						
1308	1536	0.25	50.2	0.3	50.5	700	72	0.72	1.4	200	6,600	0.53	10	91	85	82	96.3	88.6	1.3	11.8	0.9	9.5
1311						550	112	0.85	1.2	520	8,400	0.61	15	94	91	87						
[2]931						865	0	0.20	0.5	1	1,505	0.34	0	54	42	36						
932	P-1329	1.50	55.9	0.1	56.0	700	69	0.84	1.2	320	7,000	0.52	15	93	88	84	97.0	84.5	0.6	16.8	1.7	..
933						550	111	0.98	1.1	670	9,400	0.60	20	94	90	87						
						855	0	0.16	0.5	1	1,180	0.28	0	65	53	50						
1312	1536	0.50	48.4	0.0	48.4	700	85	0.60	1.2	75	5,700	0.49	10	93	91	85	97.6	91.6	0.9	9.6	0.0	6.2
						550	140	0.66	1.1	165	7,300	0.56	15	93	91	88						
[3]892						850	0	0.17	0.5	1	1,110	0.31	0	54	45	40						
893	P-1329	4.50	47.1	0.0	47.1	700	80	0.53	0.8	9	4,360	0.43	15	93	88	82	97.5	78.6	1.4	15.8	1.6	..
894						550	..	....	..	....	....	....	20	92	90	85						
						850	0	0.15	0.4	1	1,170	0.29	0	67	58	53						
1309	1536	0.75	47.2	0.0	47.2	700	73	0.56	1.0	48	5,200	0.49	5	90	86	83	98.0	92.2	0.6	9.7	0.4	4.9
						550	121	0.60	0.9	80	6,400	0.57	8	94	92	88						
1310						850	0	0.15	0.5	1	1,150	0.28	0	68	60	53						
1313	1536	1.00	46.1	0.0	46.1	700	86	0.57	1.1	49	4,600	0.49	6	92	88	85	97.5	91.4	0.6	8.8	0.0	4.0
						550	138	0.59	0.9	75	5,600	0.56	9	93	91	88						
						850	0	0.15	0.5	0	1,128	0.27	0	75	66	62						
1314	1536	1.50	43.1	0.0	43.1	700	78	0.54	1.0	34	5,200	0.47	3	90	88	84	97.1	92.3	0.3	6.6	0.0	2.7
						550	128	0.54	0.8	46	5,700	0.54	7	94	90	89						

[1] The cooking conditions other than those given were as follows: Continuous liquor flow: Time to maximum temperature, ½ hour; Rate of flow of liquor, 0.25 gallon per minute; Sulphidity (based on active alkali), 33.9%; Ratio of caustic soda to sodium sulphide, 2:1; Total concentration, 45.0 grams per liter.

[2] Batch process: Time to maximum temperature, 1.5 hours; Sulphidity (based on active alkali), 33.9%; Ratio of caustic soda to sodium sulphide, 2:1; Total concentration, 50.0 grams per liter; Pounds of chemical per 100 pounds of wood, 20.0; Volume of liquor per 100 pounds of wood, 48.0 gallons.

[3] Batch process: Time to maximum temperature, 1.5 hours; Sulphidity (based on active alkali), 20%; Ratio of caustic soda to sodium sulphide, 4:1; Total concentration, 66.4 grams per liter; Pounds of chemical per 100 pounds of wood, 27.7; Volume of liquor per 100 pounds of wood, 50 gallons.

Discussion of Results

Effect of Concentration

In accordance with previous experience, the rate of pulping increased as the concentration of chemical in the cooking liquor was increased. However, for concentrations in excess of 52.5 grams per liter the change in rate of pulping was not in proportion to the increase in concentration. In all studies, the rate of the reaction greatly exceeded that of the conventional batch process where the concentration of the cooking liquors decreases as the reaction proceeds. Kraft-type pulps were produced in 35 minutes under the conditions employed. Easy-bleaching sulphate pulps were produced in relatively short cooking periods, only 1 hour and 50 minutes being required for even the low concentration of 30 grams per liter. The relationship between yield of pulp and time of digestion for several con

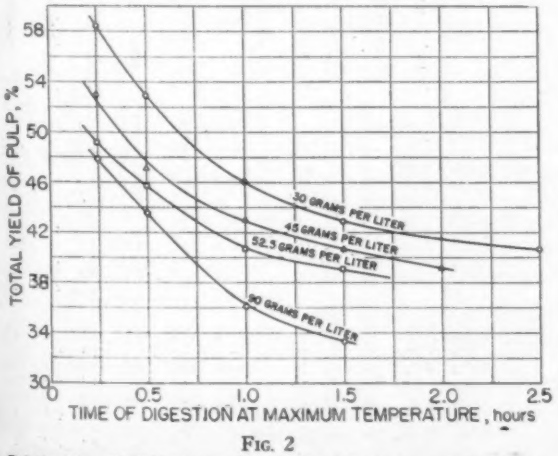
TOTAL YIELD OF PULP, %
TIME OF DIGESTION AT MAXIMUM TEMPERATURE, hours
30 GRAMS PER LITER
45 GRAMS PER LITER
52.5 GRAMS PER LITER
90 GRAMS PER LITER

Fig. 2
Relationship of Yield of Douglas Fir Sulphate Pulp to Time of Digestion at Maximum Temperature (170 Deg. C.) for Several Concentrations of Chemicals in Cooking Liquor

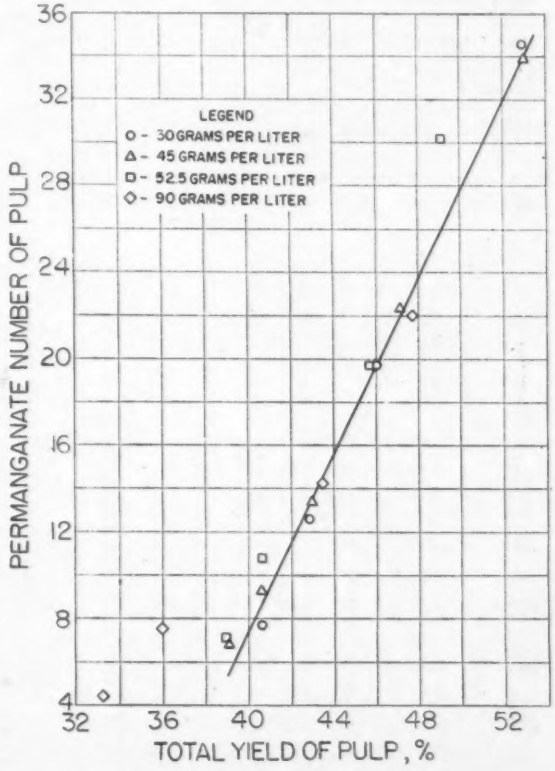
LEGEND
○ - 30 GRAMS PER LITER
△ - 45 GRAMS PER LITER
□ - 52.5 GRAMS PER LITER
◇ - 90 GRAMS PER LITER
PERMANGANATE NUMBER OF PULP
TOTAL YIELD OF PULP, %

Fig. 3
Relationship of Permanganate Number to Total Yield of Douglas Fir Sulphate Pulp

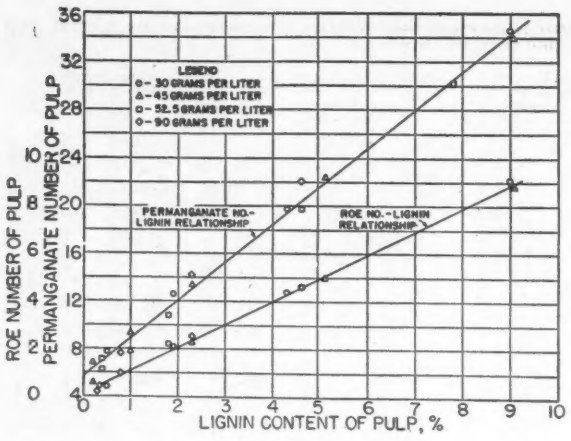
LEGEND
o– 30 GRAMS PER LITER
Δ– 45 GRAMS PER LITER
□– 52.5 GRAMS PER LITER
◇– 90 GRAMS PER LITER
PERMANGANATE NO.–LIGNIN RELATIONSHIP
ROE NO.–LIGNIN RELATIONSHIP
ROE NUMBER OF PULP
PERMANGANATE NUMBER OF PULP
LIGNIN CONTENT OF PULP, %

FIG. 4

Relationship of Permanganate Number and Roe Number to Lignin Content of Douglas Fir Sulphate Pulp

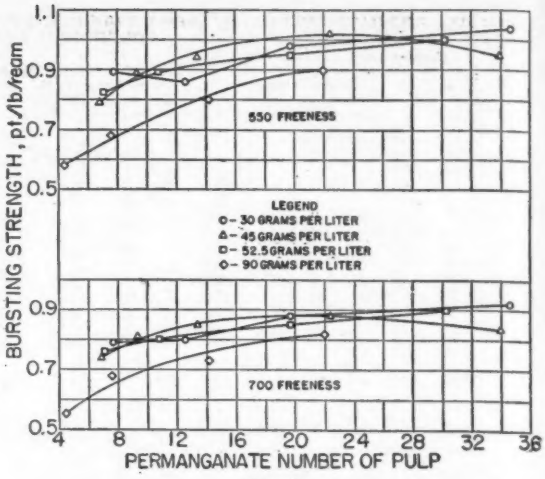

FIG. 5

Relationship of Permanganate Number to the Bursting Strength of Douglas Fir Sulphate Pulp at 700 and 500 ml. Freeness (Schopper-Riegler)

centrations of chemicals in the cooking liquor is shown in Fig. 2.

The data in Table II shows that, except for those produced at the highest concentration (90 grams per liter), pulps of equal yield were quite similar in strength, bleach requirement, and chemical properties. Digestions made with a concentration of 90 grams per liter in the cooking liquor resulted in pulps of inferior strength properties.

As indicated in Figs. 3, 4, 5, and 6 the permanganate numbers of the pulps are criteria of their yield, bleach requirement, strength, and chemical composition. The data plotted Fig. 3 show that, except for the pulps produced at the highest concentration, the total yield of pulp is a straight-line function of the permanganate number. Fig. 4 also shows straight-line relationships between lignin content of the pulps and their permanganate and Roe chlorine numbers, respectively. The data recorded in Table II and shown graphically in Figs. 5 and 6 indicate relationships between the permanganate number and the bursting and tearing strengths of the pulps. Except for extremely raw pulps, an increase in the permanganate number corresponded to an increase in the bursting strength. At both 700 and 550 Schopper-Riegler freeness values, maximum bursting strengths were obtained when the permanganate numbers were 20 or above (Fig. 5). The tearing strength reached a maximum value at a permanganate number of approximately 13 (Fig. 6).

The Douglas fir sulphate pulps were characteristically high in tearing strength. According to the data in Table II, pulp produced from the same sample of chips by the customary batch process (digestions 1266, 1267, and 1268) were not different in strength properties from that made by continuous liquor flow

TABLE V.—SULPHATE PULPING OF DOUGLAS FIR (*PSEUDOTSUGA TAXIFOLIA*) AND ASPEN (*POPULUS TREMULOIDES*) BY A CONTINUOUS LIQUOR-FLOW METHOD. EFFECT OF SULPHIDITY ON YIELD AND PULP QUALITY

Digestion No.	Tree No.	Concentration of Chemical, g. per liter	Sulphidity, %	Free Alkali Content, g. per liter	Duration at Maximum Temperature 170°C., hr.	Yield of Moisture-free Pulp: Screened, %	Screenings, %	Total, %	Freeness (Schopper-Riegler), ml.	Time of Treatment, min.	Bursting Strength, pt./lb./ream	Tearing Strength, g./lb./ream	Folding Endurance, double folds	Tensile Strength, lb. per sq. inch	Solid Fraction, ratio	Standard Bleaching Powder Added to Pulp, %	Ives Readings: Red, parts	Green, parts	Blue, parts	Cellulose: Total, %	Alpha, %	Lignin, %	Total Pentosans, %	Roe Number	Permanganate Number
Douglas Fir																									
1301	3	45.0	33.9	37.7	0.50	46.8	0.3	47.1	700	60	0.88	3.2	1,800	5,000	0.43	0	49	36	30						
									550	80	1.02	2.8	2,050	6,000	0.46	25	79	68	56	92.3	80.6	5.1	4.0	5.0	22.4
1329	3	41.8	20.4	37.7	0.50	47.8	0.7	48.5	700	65	0.78	2.8	1,080	4,400	0.41	0	42	29	22						
									550	86	0.85	2.3	1,200	5,800	0.46	25	64	49	33	89.6	78.3	7.3	4.5	7.2	23.5
1325	3	39.7	10.2	37.7	0.50	49.0	2.2	51.2	700	67	0.78	2.5	840	4,600	0.39	0	40	27	20						
									550	87	0.86	1.9	1,050	5,600	0.44	25	58	40	29	87.4	74.9	10.3	4.6	8.5	24.0
1303									700	49	0.81	3.1	940	5,000	0.42	0	61	50	41						
1304	3	45.0	33.9	37.7	1.50	40.6	0.0	40.6	550	68	0.89	2.7	1,120	6,000	0.46	20	92	88	85	96.8	84.9	1.0	2.9	1.9	9.3
1330	3	41.8	20.4	37.7	1.50	41.4	0.0	41.4	700	41	0.79	2.7	670	5,400	0.42	0	58	46	39						
									550	57	0.82	2.0	700	6,400	0.45	20	84	80	80	96.0	83.3	1.6	3.3	1.6	10.5
1326	3	39.7	10.2	37.7	1.50	43.4	0.0	43.4	700	43	0.76	3.3	1,070	4,200	0.40	0	55	42	35						
									550	63	0.85	2.5	1,200	6,000	0.46	20	87	82	79	96.3	83.7	2.5	3.3	2.1	14.3
Aspen																									
1308									700	72	0.72	1.4	200	6,000	0.53	0	64	52	46						
1311	..	45.0	33.9	37.7	0.25	50.2	0.3	50.5	550	112	0.85	1.2	520	8,400	0.61	15	94	91	87	96.3	88.6	1.3	11.8	0.9	9.5
1327	..	39.7	10.2	37.7	0.25	50.8	0.8	51.6	700	84	0.67	1.3	150	5,800	0.52	0	62	50	44						
1310									550	134	0.81	1.1	375	8,200	0.61	15	84	78	80	94.9	88.2	1.8	11.6	1.8	11.7
1313	..	45.0	33.9	37.7	1.00	46.1	0.0	46.1	700	86	0.57	1.1	49	4,600	0.49	0	68	60	53						
									550	138	0.59	0.9	75	5,600	0.56	6	92	88	85	97.5	91.4	0.6	8.8	0.0	4.0
1328	..	39.7	10.2	37.7	1.00	46.3	0.0	46.3	700	83	0.57	1.1	63	5,200	0.50	0	71	62	57						
									550	133	0.61	0.9	96	6,500	0.58	6	83	78	82	98.6	93.2	0.3	8.5	0.3	4.1

[1] The cooking conditions other than those given were as follows: Temperature increase period, ½ hour. Rate of flow of cooking liquor, 0.25 gallon per minute.

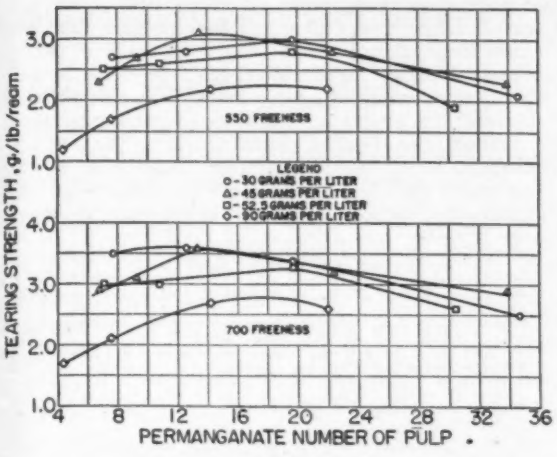
TEARING STRENGTH, g/lb./ream
PERMANGANATE NUMBER OF PULP
550 FREENESS
700 FREENESS
LEGEND
o - 30 GRAMS PER LITER
Δ - 45 GRAMS PER LITER
□ - 52.5 GRAMS PER LITER
◇ - 90 GRAMS PER LITER

FIG. 6

Relationship of Permanganate Number to the Tearing Strength of Douglas Fir Sulphate Pulp at 700 and 500 ml. Freeness (Schopper-Riegler)

(digestion 1301). The color, bleach requirement, and chemical characteristics, however, notably the lower pentosan content, definitely indicated higher purity of the pulp produced with continuous liquor flow. In addition, for the same bleach requirement, a continuous flow of liquor produced higher yields of pulp than the usual batch method.

Since the wood from tree 3 was high in lignin and difficult to reduce, several pulping tests were made on wood taken from another tree of this shipment (tree 4, bolt 10), which had a relatively low lignin and a high cellulose content. Although this material pulped more easily than that of tree 3, no noticeable differences in strength, bleach requirement, or chemical characteristics of the pulps resulted. (See Table III).

Additional pulping tests made on aspen by continuous liquor flow indicated similar trends. The aspen chips were readily reduced. They gave good yields of pulp of high alpha-cellulose and of low pentosan contents and of low bleach requirement. The data, contrasted with results obtained by the customary batch process, are reported in Table IV. In comparing pulps of equal yield, pulps of lower pentosan content, lower chlorine requirement, higher alpha-cellulose content, and better strength properties were obtained in a much shorter cooking time with a continuous flow of liquor than by the ordinary batch process.

Effect of Varying the Sulphidity

As shown in Table V, increasing the sulphidity of cooking liquors of the same alkali content increased the rate of pulping, especially with Douglas fir. The effect brought about by this change, however, appears to vary with the species. The pulps obtained from aspen with 10.2 and 33.9% sulphidity differed much less in yield, strength, bleach requirement, and chemical charactertistics than those obtained from Douglas fir. Pulps of lower yield and of higher purity were obtained from Douglas fir (tree 3) by increasing the sulphidity from 10.2 to 20.4% and from 20.2 to 33.9%. Douglas fir kraft pulp produced with a cooking liquor of 33.9% sulphidity (digestion No. 1301) was superior in strength characteristics to comparable pulps obtained with liquors of lower sulphidity. The lower strength properties of the latter pulps may be attributed to their high lignin content or "rawness." The easy-bleaching pulp obtained with liquor of 33.9% sulphidity was as good, if not better, in all strength properties than comparable pulps obtained with liquors of lower sulphidity, although the yield and bleach requirements of the high sulphidity pulp were lower than those obtained with liquors of lower sulphidity. Unlike the kraft pulps, however, the easy-bleaching pulps did not vary greatly in their strength and bleaching characteristics.

Effect of Rate Flow

The data recorded in Table VI, showing the effect of rate of flow on time of digestion, indicate that increasing the rate of flow increased the rate of pulping for the short cooking periods. (Compare digestions 1323 and 1316.) For the longer cooking periods, however, (compare digestions 1324 and 1318) where low yields were obtained, increasing the rate of flow showed little difference in yield but the pulps resulting from a more rapidly flowing liquor were higher in total and alpha-cellulose contents and lower in lignin, in pentosans, and in chlorine requirements than those obtained from a slower-flowing liquor.

TABLE VI.—SULPHATE PULPING OF DOUGLAS FIR (*PSEUDOTSUGA TAXIFOLIA*) BY A CONTINUOUS LIQUOR-FLOW METHOD. EFFECT OF RATE OF FLOW OF COOKING LIQUOR ON YIELD AND PULP QUALITY (TREE 4, SHIPMENT 1528)

	Cooking and Yield Data [1]					Interpolated Beater Strength Data on Unbleached Pulp. Tests Made at 72° F. and 65% Relative Humidity							Bleach Requirement				Chemical Characteristics					
			Yield of Moisture-free Pulp										Ives Readings				Cellulose					
Digestion No.	Rate of Flow of Liquor, gal. per min.	Duration at Maximum Temperature 170°C., hr.	Screened, %	Screenings, %	Total, %	Freeness (Schopper-Riegler), ml.	Time of Treatment, min.	Bursting Strength, pt./lb./ream	Tearing Strength, g./lb./ream	Folding Endurance, double folds	Tensile Strength, lb. per sq. inch	Solid Fraction, ratio	Standard Bleaching Powder Added to Pulp, %	Red, parts	Green, parts	Blue, parts	Total, %	Alpha, %	Lignin, %	Total Pentosans, %	Roe Number	Permanganate Number
1315	0.25	0.25	49.1	2.8	51.9	700	77	0.89	2.6	1,100	5,600	0.42	0	42	28	21						
						550	100	0.97	2.2	1,400	6,600	0.46	25	59	42	29	86.9	75.8	9.4	4.8	8.7	23.8
1323	0.10	0.50	43.3	7.3	50.6	700	53	0.90	2.9	1,700	5,200	0.41	0	43	30	23						
						550	71	0.98	2.3	1,960	6,700	0.48	25	70	54	42	90.7	77.8	7.1	5.6	7.4	30.3
1316	0.25	0.50	47.3	0.1	47.4	700	53	0.87	3.4	1,300	5,400	0.41	0	50	35	27						
						550	72	0.98	2.7	1,200	7,000	0.47	25	75	62	50	91.8	79.7	4.9	4.8	5.3	21.9
1317	0.25	1.00	44.0	0.0	44.4	700	48	0.87	2.9	1,200	5,200	0.43	0	58	44	36						
						550	66	0.94	2.6	1,900	6,600	0.48	25	87	82	82	95.1	83.5	2.2	4.0	2.4	13.2
1324	0.10	1.50	42.5	0.0	42.5	700	54	0.90	2.8	1,200	5,100	0.42	0	54	42	34						
						550	75	0.96	2.2	1,120	6,600	0.47	25	86	81	83	95.0	82.1	1.9	4.3	2.2	13.3
1318	0.25	1.50	42.4	0.0	42.4	700	47	0.77	3.1	880	5,400	0.41	0	60	48	40						
						550	66	0.86	2.4	1,200	6,500	0.45	20	87	82	84	95.8	83.9	1.4	3.7	1.0	8.8

[1] The cooking conditions other than those given were as follows: Temperature increase period, ½ hour. Sulphidity of cooking liquor (based on active alkali), 33.9%. Ratio of caustic soda to sodium sulphide, 2:1. Total concentration of chemicals in cooking liquor, 45.0 grams per liter.

Even when relatively large volumes of liquors carrying proportionally large quantities of chemicals were passed continuously through the digester, the actual amount of chemicals consumed was calculated to be approximately the same as for the normal ratios of chemical to wood employed in the batch method. More complete consumption of the chemicals in the spent liquors might be effected by using a battery of digesters, allowing the liquors to pass from one to the other in a countercurrent manner until the active alkali is practically exhausted. It has been claimed by Jenke (*2*) that the amount of chemicals necessary to be replaced in a countercurrent system need not exceed that of the batch process. Another alternative is that the spent liquor from a continuous flow operation might be refortified and used again in digesters operated by the batch process.

Conclusions

The use of a continuous flow of preheated liquors at constant concentration produced both kraft and easy-bleaching pulps in much shorter time than the customary batch process. Pulps of higher purity higher strength, higher alpha-cellulose content, and lower bleach requirement can be made by this method. Although the economic feasibility of pulping by such a method depends upon complete consumption of the chemicals in subsequent digestions, application of the continuous flow principle offers possibilities of increasing production by decreasing the time of digestion.

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TAPPI Meets at New Orleans

The third part of the fall meeting of the Technical Association of the Pulp and Paper Industry was held at the Roosevelt Hotel, New Orleans, La., on October 14-16, 1946. This meeting was sponsored jointly by the TAPPI Alkaline Pulping Committee, K. G. Chesley, Crossett Paper Mills, and the Chemical Products Committee, R. H. Stevens, National Container Corporation, chairmen. W. F. Gillespie of the Gaylord Container Corporation was general chairman. About 240 attended.

On the evening of October 13th, the Gaylord Container Corporation, Bogalusa, La., were hosts to the early arrivals at a cocktail party at the Roosevelt Hotel.

Chemical Products Session

R. H. Stevens of Jacksonville, Fla. presided as chairman of the first session which was devoted to chemical products derived from the kraft process.

W. P. Lawrence of the Champion Paper & Fibre Company, Canton, N. C. presented a paper entitled "Collection of Crude Sulphate Turpentine". This paper was based on a number of inquiries received during the past year by the Chemical Products Committee. Mr. Lawrence indicated that the points of chief importance in sulphate turpentine collection include adequate and careful relief, avoiding losses in the separation in either vapor or condensate form, maintaining clean condenser surfaces, and disposal of emulsions. Corrosion of storage tanks is one of the operating problems experienced, but this does not seem related to any operating conditions, The species of pine cooked is the most important single factor governing yield of temperature. Slash and longleaf pine yield 2.8 to 4.3 gallons per ton of pine pulp. Loblolly and shortleaf and Virginia pines, 1.5 to 2.7 gallons; jack and white pine 1.5 to 3.1 gallons.

S. G. Norton of the Hercules Powder Company, Brunswick, Ga. discussed "Corrosion in Storage Tanks for Crude Sulphate Turpentine". His conclusions were as follows: Tanks constructed of stainless steel, Everdur, or nickel should be satisfactory for storage of crude sulphate turpentine. Steel clad with a thin layer of any of these metals on the interior should be equally satisfactory, and less expensive. Aluminum or hot dipped galvanized tanks would probably be acceptable, but these materials should be tested under operating conditions before constructing the tanks. Copper would doubtless be satisfactory since it forms a very dense coating of sulphide which would protect it from further action. A steel tank insulated against marked temperature changes or even shaded against the sun, or painted outside with a reflecting paint such as aluminum would probably suffer less corrosion than one exposed to wide changes of interior temperature. A steel tank, or separator, so operated that it is kept filled completely with fresh crude sulphate turpentine, should suffer little corrosion.

Paul R. Wiley of the West Virginia Pulp and Paper Company, Charleston, S. C. reported on the Fuel and Soda Value of Tall Oil Skimmings. Mr. Wiley said in part "Tall oil skimmings as currently being separated at nearly all sulphate pulp mills in the South is a mixture of tall oil soap and black liquor. Typical compositions are 30-35% water, 5-10% black liquor solids, with the balance soap. It has a fuel value of 8000-9000 B.t.u. per pound and has a sodium equivalent to about 6% sodium oxide". He showed nomographs correlating the value of skimmings to tall oil yields, soda ash costs, and fuel costs.

Dr. Wiley also indicated the present status of the ASTM test methods for testing tall oil (ASTM Standard D 803-44T).

Charles Carpenter and C. C. Porter of the Southland Paper Mills, Lufkin, Texas presented, by title, a paper on "The Nature of Extractives in Southern Pine".

Alkaline Pulping Session

K. G. Chesley of Crossett, Ark. presided at the Monday afternoon session of the TAPPI Alkaline Pulping Committee.

C. C. Porter of the Southland Paper Mills discussed "The Elimination of Lime Kiln Stack Losses with Type N Rotoclone". Mr. Porter stated that operating experience indicates that the type N Rotoclone, or similar equipment, to be a logical routine portion of the lime recovery system. The soda recovery figures indicate that the use of vacuum washers for soda recovery is probably not necessary.

This was followed by the presentation of two progress reports from the Gaylord Container Corporation. J. E. Sapp and W. F. Gillespie have considerable data on "The Effect of Tension During Drying

on Sheet Strength" and W. F. Gillespie and J. J. Goss reported on plant scale experiments relating to "The Jordan Refining of Sulphate Pulp". These reports will be published.

Banquet Program

Following the Monday evening dinner, Vertrees Young, Executive Vice President of the Gaylord Container Corporation presided as toastmaster and introduced the speakers of the evening, G. W. E. Nicholson, President of the Technical Association who gave a very interesting and detailed account of his recent trip to the Scandinavian countries as part of an industrial delegation to observe the advances that have been made in research and industry in those countries.

Symposium on Pulp Washing

Alfred Suter of the Gaylord Container Corporation presided as chairman of a Symposium on Sulphate Pulp Washing. Mr. Suter was an excellent chairman and was able to induce a large number of those present in addition to the speakers to enter into the general discussion.

P. J. Hannan of the Southern Advance Bag Company, Hodge, La. discussed "Open Top Diffusers" and indicated reasons why he prefers closed top diffusers. The open type diffusers have the advantage of a shorter washing cycle. The chief disadvantage lies in channeling, with resulting "slick spots" in the pulp, and slightly weaker effluent. Until this trouble can be overcome closed diffusers will be preferred.

R. R. Fuller of the Gulf States Paper Company, Tuscaloosa, Ala. presented, by title, a paper on "Washing Pulp in Diffusers".

George W. Brumley of the St. Mary's Kraft Corporation, St. Marys, Ga. discussed "Washing Sulphate Pulp with Screw Presses". In this program he gave a good description of the operation of screw presses and indicated that one of their main disadvantages is relatively high maintenance costs.

R. C. Richter of the National Container Corporation, Jacksonville, Fla. presented a fine paper on "An Approach to a Critical Study of Pulp Washing" at the National Container Corporation mill in Jacksonville. With an average daily production of 262 tons of air-dry pulp the retained soda was found to average 40.5 lb. salt cake equivalent. Fresh water introduced into the system was 0.85 gallons per pound of air-dry pulp. The water temperature averaged 144° F. The evaporation feed liquor had an ave. solids content of 17% and temperature of 185° F. The net overall dilution of black liquor was a little less than 1.7 lb. water per lb. air-dry pulp. There was no loss to the sewer.

A. Suter of Bougalusa reported on his mills problem in washing sulphate pulp. This problem was based on the necessity of making important installation decisions on two occasions. As a result of his experience he favored rotary washers as being superior to diffusers as regards dependability and flexibility.

The final paper was by F. S. McCall, M. Klein and J. R. Lientz of the Union Bag & Paper Corporation, Savannah, Ga. This dealt with "The Effect of Certain Variables in he Operation of Rotary Pulp Washers." This paper will be published.

Visit to Bogalusa

Wednesday, October 16th was devoted to a visit to the mill of the Gaylord Container Corporation at Bogalusa, La. Luncheon was served at the Pine Tree Inn and visits were made not only through the mill and bag and box factories but to the reforested tracts in the neighborhood of Bogalusa.

Gaylord Container Corporation Host

The success of the meeting was due to the efforts of two sponsoring committees and to the generosity of Mr. Vertrees Young and the Gaylord Container Corporation who acted as host to those present. A special program was arranged and enjoyed by the ladies present.

Those present included:

A
Abbott, O. C.
Adams, Eugene J.
Adams, Wm. R.
Aitkens, John L.
Alciatore, Antoine F.
Allemore, Norman F.
Allison, Art
Allison, Henry J.
Anderson, Velden M.
Archibold, E. E. Jr.
Auchter, Richard J.
Augustine, Fred E.

B
Bache, E., Mr. and Mrs.
Bain, J. P.
Barker, C. P.
Baker, W. E. Byron
Barlow, Lloyd
Beasley, B.
Bell, Thos. E.
Bergstrom, R. E.
Betz, Allen W.
Bishop, Fred W.
Borman, Henry W.
Bowen, Robert E.
Bowman, Paul E.
Boyce, M. H.
Bradbury, Jesse C.
Brainerd, F. W.
Bradshares, C. A.
Brasfield, W. G. Jr.
Brawn, Worthen E., Mr. and Mrs.
Brooks, Bruce
Brumley, Geo. W.
Bush, Miss Edythe

C
Chandler, John E. Mr. and Mrs.
Champion, C. W.
Chang, C. C.
Charbonnier, H. Y.
Charters, G. W.
Chesley, E. G.
Clapp, L. L., Mr. and Mrs.
Clarke, Geo. L.
Clarke, Wm. W.
Collins, T.
Corriston, Jack
Cotter, Harold F.
Cousins, D. E.
Covington, W. W.
Cowan, Edward L. Mr. and Mrs.
Cowan, John D.
Crandall, Henry C.
Crawford, Stuart C.
Crist, E. W.
Cuyle, R. F.

D
Downs, M. L.
Dreis, Arthur G.
Durant, L. G.
Dyer, John K. Jr.

E
Ebersole, W. M.
Ekberg, J. P., Mr. and Mrs.
Elderkin, K. O.
Ellen, Bruce P.
Erickson, W. E.

F
Fahlgren, Sven
Farris, Melvin J.
Fawkes, Chas. E.
Frederick, Emile Jr.
Fromm, George E.
Fuller, Robert R., Mr. and Mrs.

G
Gates, L. E., Mr. and Mrs.
Gayer, F. H.
Gephart, O. P., Mr. and Mrs.
Gibbs, N. B.
Gillespie, W. F., Mr. and Mrs.
Goodwin, R. G.
Goss, J. J.
Green, C. M.
Green, Rudolph T.
Griffin, A. E.
Guell, M. R.

H
Hannan, P. J., Mr. and Mrs.
Harper, E. A.
Harris, Mace
Harrison, Ward, Mr. and Mrs.
Harter, Ray E.
Hemphill, J. W., Mr. and Mrs.
Homan, J. B.
Hunsicker, C. R.

J
Jennings, Wm. H.
Johnson, J. Bracken
Johnston, R. S.
Jones, A.

K
K'Burg, Paul B.
Kearney, James E.
Kenety, W. H.
Kingsbury, G. O.
Kirchen, C. P.
Klein, Maurice
Krebs, Wm. J.

L
Lawrence, W. P.
Leaf, C. S.
Leavitt, E. M.
LeMay, J. E.
Lepeyre, F. S.
Levert, A. D., Mr. and Mrs.
Lewthwaite, N. A. Mr. and Mrs.
Lientz, J. R.
Liskow, John G.
Livengood, R. G.
Lukemire, Edward L.
Lyon, Malcolm G.

M
McCarthy, Justin H.
McDonald, M. C., Mr. and Mrs.
McDonald, T. O.
McGlothlin, L. D.
Macdonald, R. G.
Martin, Bruce W.
Martin, Harry C.
Mauldin, Earle
Mayeux, Chas. J.

Even when relatively large volumes of liquors carrying proportionally large quantities of chemicals were passed continuously through the digester, the actual amount of chemicals consumed was calculated to be approximately the same as for the normal ratios of chemical to wood employed in the batch method. More complete consumption of the chemicals in the spent liquors might be effected by using a battery of digesters, allowing the liquors to pass from one to the other in a countercurrent manner until the active alkali is practically exhausted. It has been claimed by Jenke (*2*) that the amount of chemicals necessary to be replaced in a countercurrent system need not exceed that of the batch process. Another alternative is that the spent liquor from a continuous flow operation might be refortified and used again in digesters operated by the batch process.

Conclusions

The use of a continuous flow of preheated liquors at constant concentration produced both kraft and easy-bleaching pulps in much shorter time than the customary batch process. Pulps of higher purity higher strength, higher alpha-cellulose content, and lower bleach requirement can be made by this method. Although the economic feasibility of pulping by such a method depends upon complete consumption of the chemicals in subsequent digestions, application of the continuous flow principle offers possibilities of increasing production by decreasing the time of digestion.

Literature Cited

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TAPPI Meets at New Orleans

The third part of the fall meeting of the Technical Association of the Pulp and Paper Industry was held at the Roosevelt Hotel, New Orleans, La., on October 14-16, 1946. This meeting was sponsored jointly by the TAPPI Alkaline Pulping Committee, K. G. Chesley, Crossett Paper Mills, and the Chemical Products Committee, R. H. Stevens, National Container Corporation, chairmen. W. F. Gillespie of the Gaylord Container Corporation was general chairman. About 240 attended.

On the evening of October 13th, the Gaylord Container Corporation, Bogalusa, La., were hosts to the early arrivals at a cocktail party at the Roosevelt Hotel.

Chemical Products Session

R. H. Stevens of Jacksonville, Fla. presided as chairman of the first session which was devoted to chemical products derived from the kraft process.

W. P. Lawrence of the Champion Paper & Fibre Company, Canton, N. C. presented a paper entitled "Collection of Crude Sulphate Turpentine". This paper was based on a number of inquiries received during the past year by the Chemical Products Committee. Mr. Lawrence indicated that the points of chief importance in sulphate turpentine collection include adequate and careful relief, avoiding losses in the separation in either vapor or condensate form, maintaining clean condenser surfaces, and disposal of emulsions. Corrosion of storage tanks is one of the operating problems experienced, but this does not seem related to any operating conditions, The species of pine cooked is the most important single factor governing yield of temperature. Slash and longleaf pine yield 2.8 to 4.3 gallons per ton of pine pulp. Loblolly and shortleaf and Virginia pines, 1.5 to 2.7 gallons; jack and white pine 1.5 to 3.1 gallons.

S. G. Norton of the Hercules Powder Company, Brunswick, Ga. discussed "Corrosion in Storage Tanks for Crude Sulphate Turpentine". His conclusions were as follows: Tanks constructed of stainless steel, Everdur, or nickel should be satisfactory for storage of crude sulphate turpentine. Steel clad with a thin layer of any of these metals on the interior should be equally satisfactory, and less expensive. Aluminum or hot dipped galvanized tanks would probably be acceptable, but these materials should be tested under operating conditions before constructing the tanks. Copper would doubtless be satisfactory since it forms a very dense coating of sulphide which would protect it from further action. A steel tank insulated against marked temperature changes or even shaded against the sun, or painted outside with a reflecting paint such as aluminum would probably suffer less corrosion than one exposed to wide changes of interior temperature. A steel tank, or separator, so operated that it is kept filled completely with fresh crude sulphate turpentine, should suffer little corrosion.

Paul R. Wiley of the West Virginia Pulp and Paper Company, Charleston, S. C. reported on the Fuel and Soda Value of Tall Oil Skimmings. Mr. Wiley said in part "Tall oil skimmings as currently being separated at nearly all sulphate pulp mills in the South is a mixture of tall oil soap and black liquor. Typical compositions are 30-35% water, 5-10% black liquor solids, with the balance soap. It has a fuel value of 8000-9000 B.t.u. per pound and has a sodium equivalent to about 6% sodium oxide". He showed nomographs correlating the value of skimmings to tall oil yields, soda ash costs, and fuel costs.

Dr. Wiley also indicated the present status of the ASTM test methods for testing tall oil (ASTM Standard D 803-44T).

Charles Carpenter and C. C. Porter of the Southland Paper Mills, Lufkin, Texas presented, by title, a paper on "The Nature of Extractives in Southern Pine".

Alkaline Pulping Session

K. G. Chesley of Crossett, Ark. presided at the Monday afternoon session of the TAPPI Alkaline Pulping Committee.

C. C. Porter of the Southland Paper Mills discussed "The Elimination of Lime Kiln Stack Losses with Type N Rotoclone". Mr. Porter stated that operating experience indicates that the type N Rotoclone, or similar equipment, to be a logical routine portion of the lime recovery system. The soda recovery figures indicate that the use of vacuum washers for soda recovery is probably not necessary.

This was followed by the presentation of two progress reports from the Gaylord Container Corporation. J. E. Sapp and W. F. Gillespie have considerable data on "The Effect of Tension During Drying

on Sheet Strength" and W. F. Gillespie and J. J. Goss reported on plant scale experiments relating to "The Jordan Refining of Sulphate Pulp". These reports will be published.

Banquet Program

Following the Monday evening dinner, Vertrees Young, Executive Vice President of the Gaylord Container Corporation presided as toastmaster and introduced the speakers of the evening, G. W. E. Nicholson, President of the Technical Association who gave a very interesting and detailed account of his recent trip to the Scandinavian countries as part of an industrial delegation to observe the advances that have been made in research and industry in those countries.

Symposium on Pulp Washing

Alfred Suter of the Gaylord Container Corporation presided as chairman of a Symposium on Sulphate Pulp Washing. Mr. Suter was an excellent chairman and was able to induce a large number of those present in addition to the speakers to enter into the general discussion.

P. J. Hannan of the Southern Advance Bag Company, Hodge, La. discussed "Open Top Diffusers" and indicated reasons why he prefers closed top diffusers. The open type diffusers have the advantage of a shorter washing cycle. The chief disadvantage lies in channeling, with resulting "slick spots" in the pulp, and slightly weaker effluent. Until this trouble can be overcome closed diffusers will be preferred.

R. R. Fuller of the Gulf States Paper Company, Tuscaloosa, Ala. presented, by title, a paper on "Washing Pulp in Diffusers".

George W. Brumley of the St. Mary's Kraft Corporation, St. Marys, Ga. discussed "Washing Sulphate Pulp with Screw Presses". In this program he gave a good description of the operation of screw presses and indicated that one of their main disadvantages is relatively high maintenance costs.

R. C. Richter of the National Container Corporation, Jacksonville, Fla. presented a fine paper on "An Approach to a Critical Study of Pulp Washing" at the National Container Corporation mill in Jacksonville. With an average daily production of 262 tons of air-dry pulp the retained soda was found to average 40.5 lb. salt cake equivalent. Fresh water introduced into the system was 0.85 gallons per pound of air-dry pulp. The water temperature averaged 144° F. The evaporation feed liquor had an ave. solids content of 17% and temperature of 185° F. The net overall dilution of black liquor was a little less than 1.7 lb. water per lb. air-dry pulp. There was no loss to the sewer.

A. Suter of Bougalusa reported on his mills problem in washing sulphate pulp. This problem was based on the necessity of making important installation decisions on two occasions. As a result of his experience he favored rotary washers as being superior to diffusers as regards dependability and flexibility.

The final paper was by F. S. McCall, M. Klein and J. R. Lientz of the Union Bag & Paper Corporation, Savannah, Ga. This dealt with "The Effect of Certain Variables in he Operation of Rotary Pulp Washers." This paper will be published.

Visit to Bogalusa

Wednesday, October 16th was devoted to a visit to the mill of the Gaylord Container Corporation at Bogalusa, La. Luncheon was served at the Pine Tree Inn and visits were made not only through the mill and bag and box factories but to the reforested tracts in the neighborhood of Bogalusa.

Gaylord Container Corporation Host

The success of the meeting was due to the efforts of two sponsoring committees and to the generosity of Mr. Vertrees Young and the Gaylord Container Corporation who acted as host to those present. A special program was arranged and enjoyed by the ladies present.

Those present included:

A
Abbott, O. C.
Adams, Eugene J.
Adams, Wm. R.
Aitkens, John L.
Alciatore, Antoine F.
Allemore, Norman F.
Allison, Art
Allison, Henry J.
Anderson, Velden M.
Archibold, E. E. Jr.
Auchter, Richard J.
Augustine, Fred E.

B
Bache, E., Mr. and Mrs.
Bain, J. P.
Barker, C. P.
Baker, W. E. Byron
Barlow, Lloyd
Beasley, B.
Bell, Thos. E.
Bergstrom, R. E.
Betz, Allen W.
Bishop, Fred W.
Borman, Henry W.
Bowen, Robert E.
Bowman, Paul E.
Boyce, M. H.
Bradbury, Jesse C.
Brainerd, F. W.
Bradshares, C. A.
Brasfield, W. G. Jr.
Brawn, Worthen E., Mr. and Mrs.
Brooks, Bruce
Brumley, Geo. W.
Bush, Miss Edythe

C
Chandler, John E. Mr. and Mrs.
Champion, C. W.
Chang, C. C.
Charbonnier, H. Y.
Charters, G. W.
Chesley, E. G.
Clapp, L. L., Mr. and Mrs.
Clarke, Geo. L.
Clarke, Wm. W.
Collins, T.
Corriston, Jack
Cotter, Harold F.
Cousins, D. E.
Covington, W. W.
Cowan, Edward L. Mr. and Mrs.
Cowan, John D.
Crandall, Henry C.
Crawford, Stuart C.
Crist, E. W.
Cuyle, R. F.

D
Downs, M. L.
Dreis, Arthur G.
Durant, L. G.
Dyer, John K. Jr.

E
Ebersole, W. M.
Ekberg, J. P., Mr. and Mrs.
Elderkin, K. O.
Ellen, Bruce P.
Erickson, W. E.

F
Fahlgren, Sven
Farris, Melvin J.
Fawkes, Chas. E.
Frederick, Emile Jr.
Fromm, George E.
Fuller, Robert R., Mr. and Mrs.

G
Gates, L. E., Mr. and Mrs.
Gayer, F. H.
Gephart, O. P., Mr. and Mrs.
Gibbs, N. B.
Gillespie, W. F., Mr. and Mrs.
Goodwin, R. G.
Goss, J. J.
Green, C. M.
Green, Rudolph T.
Griffin, A. E.
Guell, M. R.

H
Hannan, P. J., Mr. and Mrs.
Harper, E. A.
Harris, Mace
Harrison, Ward, Mr. and Mrs.
Harter, Ray E.
Hemphill, J. W., Mr. and Mrs.
Homan, J. B.
Hunsicker, C. R.

J
Jennings, Wm. H.
Johnson, J. Bracken
Johnston, R. S.
Jones, A.

K
K'Burg, Paul B.
Kearney, James E.
Kenety, W. H.
Kingsbury, G. O.
Kirchen, C. P.
Klein, Maurice
Krebs, Wm. J.

L
Lawrence, W. P.
Leaf, C. S.
Leavitt, E. M.
LeMay, J. E.
Lepeyre, F. S.
Levert, A. D., Mr. and Mrs.
Lewthwaite, N. A. Mr. and Mrs.
Lientz, J. R.
Liskow, John G.
Livengood, R. G.
Lukemire, Edward L.
Lyon, Malcolm G.

M
McCarthy, Justin H.
McDonald, M. C., Mr. and Mrs.
McDonald, T. O.
McGlothlin, L. D.
Macdonald, R. G.
Martin, Bruce W.
Martin, Harry C.
Mauldin, Earle
Mayeux, Chas. J.

Merwin, E. A.
Mills, Roe H.
Mezell, R. W.
Moon, D. G., Mr. and Mrs.
Moore, A. B. Jr.
Moore, Sam P.
Morgen, B. A.
Murphy, C. E.
Murray, J. W., Mr. and Mrs.

N

Natwick, John W.
Nicholson, G. M. E.
Noble, John
Norton, S. G.

O

Ogden, J. W.
Owen, L. B.
Owens, Vincent P.

P

Patrick, Kari
Penfield, W. E.
Pesch, A. W.
Phinney, R. E.
Pierce, H. B., Mr. and Mrs.
Pitkin, Ward H.
Pollet, Dalton L.
Porter, C. C.

R

Radiff, F. C.
Reed, Arthur E.
Reed, Glen G.
Reynolds, Robert B., Mr. and Mrs.
Richardson, W. S.
Richter, R. C., Mr. and Mrs.
Robertson, Neil E.
Robinson, C. P.
Robinson, John W., Mr. and Mrs.
Robison, John E.
Rodabaugh, Eugene
Romsdell, Thomas J.

S

Sapp, J. E.
Sauer, F. J.
Schuber, John
Schweinsberg, C. H.
Scruggs, Thos. M.
Shearon, Will H. Jr.
Shelton, Wm. J.
Sinclair, Jesse L. Jr.
Skinner, B.
Smathers, G. H., Mr. and Mrs.
Smith, Barney R.
Smith, L. L. Jr.
Smith, Rolland
Spruill, Edgar L. Jr., Mr. and Mrs.
Staidl, J. A.
Starling, W. C.
Stevens, R. H., Mr. and Mrs.
Suter, A., Mr. and Mrs.
Sutherland, D. Manson
Suttle, Bruce
Swartz, J. N.

T

Taylor, M. L.
Temple, Richard U.
Textor, C. K.
Thielens, W. P.
Thompson, L. A.
Thorsen, Karl M.
Tricon, R. J.

V

Vanderberg, J. L.
Vignes, Walter L.
Vincent, Geo. P.
Vranian, Henry, Mr. and Mrs.

W

Wadsworth, Dan M., Mr. and Mrs.
Walker, Jack T.
Waters, Vincent F.
Wegner, Nils V.
Wells, I. D.
Wernicke, Julius F. Jr.
Wertheimer, S.
Westbrook, U. J., Mr. and Mrs.
Whitfield, J. E.
Wilber, Roland
Wiley, Paul R.
Wilks, F. J.
Witham, C. L.

Y

Yirak, Jack J.
Yoder, R. L.
Young, Vertrees, Mr. and Mrs.
Youngchild, C. E.

Z

Zimmerman, Erik, Mr. and Mrs.

White Water-Treatment Discussed by Delaware Valley Section

The first meeting of the 1946-47 season for the Delaware Valley Section of TAPPI was held at the Hercules Country Club in Wilmington, Delaware on Friday, October 11. The attendance was good in spite of heavy rain and fog. Those who were able to arrive early in the afternoon visited the Hercules Experiment Station and several hardy foursomes played golf. A cocktail hour preceded the dinner at 6 p.m. John Dieffenderfer, the official host for the evening, welcomed the TAPPI members and introduced the Hercules officials present. These included:

R. Rockwell, Manager PMC Department, M. M. Bixby, Director of Sales PMC Department, P. F. Neumann, Manager of Technical Service PMC Department, T. G. Batchelor, Director of Sales PMC Department, R. W. Cairns, Asst. Director of Research (Hercules Powder Co.), R. F. Schultz, Director of Experiment Station, J. K. Speicher, Asst. Tech. Service Manager Cellulose Products Department, E. F. Hinner, Assistant Manager Virginia Cellulose Department, J. G. Little, Asst. Manager Market Development Synthetics Department, G. F. Hogg, Director of Sales Naval Stores Department, W. D. Thompson, Acting Leader PMC Group, Experiment Station, J. Barsha, of the Experiment Station who planned the special tour through the Experiment Station, W. P. Campbell, Director of Development PMC Department.

Mr. John Macadam, of the National Vulcanized Fibre Company and chairman of the Delaware Valley Section, opened the meeting and in the absence of Dr. John Weidner of the Container Corporation of America and Chairman of the Program Committee due to illness, introduced the speaker for the evening —Mr. Robert T. Sheen, consulting chemical engineer of Philadelphia. Mr. Sheen's subject "White Water-Treatment—An Industrial Waste Problem" was of vital interest to the paper mill men present and they kept Mr. Sheen busy answering many pertinent questions on the maintenance costs and efficiency of various treatment systems for white water during the discussion period following the formal presentation. Mr. Sheen's paper will be published in full in PAPER TRADE JOURNAL.

Mr. Charles Weber, Acting Head of the Paper Section of the Bureau of Standards, will talk on papermaking in Japan at the November meeting.

Those included were:

E. J. Barber
J. Barsha
Thomas G. Batchelor
H. L. Becker
M. M. Bixby
A. M. L. Bixler
Donald Bradner
Samuel M. Bratton
H. C. Brill
S. G. Briscoe
W. J. Burke
Philip G. Bruno
J. W. Burke
R. W. Cairns
W. P. Campbell
L. B. Carouthers
Charles W. Carr, Jr.
J. D. Clark
Chas. E. Conlan
C. M. Connor
James Davis
J. C. Dieffenderfer
W. P. Dohne
H. M. Donnelly
Richard C. Durham
Paul Easton
Gerard J. Eberz
M. V. Edmonson
J. M. Farnum
Harrison J. Farra
G. A. Farrah
Stanley Fenelon
Jeanne H. Fisher
Paul C. Flucke
Maurice L. Gallagher
Frederick W. Goetz
Philip H. Goldsmith
Sam Hagner
Edwin A. Hanna
Lois Hans
E. F. Hinner
G. F. Hogg
Harry Hulmes
Thos. A. D. Jackson
Sewell T. Jamison
Gerald Keim
Harry Kinne
L. T. Kratz
Henry A. Lips
J. G. Little
George Lord
H. T. Lundquist
William A. Lunsford
John Macadam
M. S. Maleson
Felix Mariani
George B. Martin
A. L. Mayer
D. Kenneth McCundy
Louise McGrath
Lex McInnes, Jr.
Edward C. Molin
Walter Morehouse
Roy P. Nelson
P. F. Neumann
D. H. Newcomb
L. M. Nicol
J. A. Paciello
Emil R. Padovic
Joseph E. Plumstead
S. T. Putman
A. W. Redlin
Leo A. Redlin
Glen T. Renegar
R. Rockwell
Samuel M. Rotondo
Allan Schenck
J. Carl Schmidt
R. F. Schultz
Robert T. Sheen
Chas. A. Shubert
Mildred H. Simon
L. J. Smith
John K. Speicher
John O. Sproute
W. D. Stephenson
John J. Steinbinder
F. L. Stiegler
Howard H. Street
Richard N. Temple
W. D. Thompson
G. Ray Tomlinson
Roy Underdown
Sterling O. Warner
K. R. Watt
R. Wiggins
Ray Wilcox
J. W. Winter
Mr. Geer
A. W. Hartley
H. F. Heller

Week's Record of Trends in The Pulp and Paper Market

Office of the PAPER TRADE JOURNAL,
Wednesday, October 23, 1946.

Production of paper and paperboard at domestic mills continues at the highest rate in history, and the gap between supply and demand is gradually closing up in some categories. Major shortages remain in certain important grades of paper because of the inequalities of price control. One of the most complicated shortages appears to be in paper for the book and magazine trade. The chief difficulty in this division is not to determine supply, which is estimated to be about 400,000 tons greater than last year, but to guess future demands, since the recent hike in OPA wodd pulp ceiling prices could work two ways. Production might be spurred by attracting more pulpwood from farm lots and adding profit incentive at the mill level. But, at the same time, the cost of paper might go to a point where publishers would drop some of their marginal publications and print fewer books.

The gap between supply and demand has been narrowed down to a point where price control is no longer justified. Continued price control, especially as it affects the import of pulp and newsprint, only endangers this supply. While domestic production of wood pulp continues at a life saving rate, there appears to be little opportunity for many United States mills to establish satisfactory inventories of European pulp this year before the shipping season closes in the late winter. Inasmuch as contracts covering a substantial portion of the quota of Swedish pulp destined for delivery to the United States during the third and fourth quarters were reported to have been canceled, there is a distinct possibility that a good part of these shipments may already have been disposed of in other world markets paying higher prices. Any significant supplies of imported newsprint during the remainder of the current year will have to come largely from Canada and Newfoundland.

Prospects for receiving any shipments from Sweden or Norway are not encouraging; small shipments may be received from Finland, but the amount expected from that country is insignificant in comparison with United States consumption. Meanwhile, the Canadian and Newfoundland newsprint industry is not too highly impressed with the present $85 per ton price set on newsprint when they know their Swedish and Finnish competitors are getting as much as $250 to $300 a ton in the Far East and Latin America.

Decontrol of paper and paperboard prices, as well as pulp prices, are needed now to promote the balance between supply and demand. The chief difficulty with domestic production today is that OPA's "earning standard" has prevented price adjustment on unprofitable grades, mainly "low-end," with the result that there has been a tendency to discontinue or curtail production of such grades. Only a free market can alter this condition and bring production back into line with the real pattern of demand. As long as price controls continue, shortages in particular grades are also bound to continue.

The index of general business activity for the week ended October 12 fell to 132.3 from 132.7 in the previous week, compared with 115.1 for the corresponding week in 1945. The index of paperboard production declined to 154.2 from 156.2 in the previous week, compared with 145.5 for the corresponding week in 1945.

Paper production for the week ended October 12 was estimated at 105.9 per cent, compared with 107.2 for the preceding week, with 96.2 for the corresponding week in 1945, with 92.9 for 1944, with 90.2 for 1943, and with 89.8 per cent for the corresponding week in 1942.

Paperboard production for the week ended October 12 was 99.0 per cent of capacity, compared with 100.0 per cent for the preceding week, with 97.0 for the corresponding week in 1945, with 96.0 for 1944, with 95.0 for 1943, and with 79.0 per cent for the corresponding week in 1942.

Wood Pulp

We are indebted to The Swedish Timber and Wood Pulp Journal (Svensk Pappersmasse-Tidning), for the following comments on the Swedish wood pulp situation. "The Swedish government on September 24th announced its decision to cut down in the export prices of its pulp and paper industries in contracts signed after July 31, 1946. This is a consequence of the probably too rash action of raising the international value of the Swedish krona, which is now becoming apparent in the form of a load on the large Swedish export industries. The reduction certainly does not fully equal the difference in the rates of exchange, as some consideration has been given to the increased production costs of the pulp and paper industry, but a net reduction of 5 per cent is nevertheless an appreciable encroachment, all the more as the international market is so strong that prices could undoubtedly have been considerably increased in a free market."

"When the Government's communique says that Sweden must take no steps that might raise the price level abroad, one must ask whether the artificial restriction of the prices of Swedish products can really produce any appreciable effect on the price level abroad? Apart from the American pulp — which owing to the OPA control constitutes a chapter of its own with strongly depressed prices in relation to those of the world market — the buyers in most countries are obviously quite prepared to pay not only the difference between the old and new rates of exchange, but even more. This is quite clear, not only from statements made by large foreign buyers, but also from the fact that our neighbors have obtained prices a good deal above the Swedish figures. It may be designated as remarkable that our country should be deprived of reasonable profits by the consideration for the price levels of other countries shown by the Swedish authorities. This may perhaps be designated as 'planned economies,' but it is certainly not good business. In any case it must be considered as unjust and unfair that the adverse consequences of our Government's monetary policy should be shouldered by only a few of our export industries, namely the forest industries."

"The Swedish pulp industry is already hard pressed. The shortage of fuel and pulp wood has prevented it from utilizing its capacity in proportion to possible sales. This tends to increase its production costs. At the instance of the authorities, the price policy of the industry has in addition been very restrictive, e.g., in reserving considerable quantities of pulp for the home market at low prices, and in applying export price limits in the shape of so-called 'directive prices.' It should be remembered that the blockade during the war compelled considerable reductions in the activities of the pulp industry, and that this industry has suffered appreciable losses on its deliveries to U.S.A. at prices, especially of bleached cellulose, which did not correspond to the costs. The chances of now recovering what was previously lost do not seem very bright. We are informed that the U. S. Pulp Consumers' Association will hold a meeting in Chicago on October 2nd and is said to intend to do all in its power to have all price control removed from pulp, but this can hardly be hoped to come off before the New Year. Is Sweden prepared to give up the chance of benefiting from the higher prices which the American buyers will then probably be prepared to pay to obtain the Swedish cellulose they covet so much?"

Old Rope and Bagging

Demand for old rope continues very heavy. All grades except strings suitable only for fibre making are in good demand at top prices.

Market for old bagging is fairly firm with most offerings taken up at

(Continued on page 52)

Paper and Paper Stock Imports At New York and Other Ports

NEW YORK IMPORTS

WEEK ENDING OCTOBER 19, 1946

SUMMARY

Newsprint .....4,126 tons, 6,648 rolls
Cigarette Paper .....31 cs.
Coated Paper .....107 cs.
Basic Paper .....2 cs.
Drawing Paper .....9 cs.
Printing Paper .....6 bls.

NEWSPRINT

News Syndicate Co., Inc., Alcoa Voyager, Baie Comeau, 2,228 tons.
H. G. Craig Co., Newscarrier, Donnacona, 365 rolls.
News Syndicate Co., Inc., Brian, Thorold, 953 tons.
News Syndicate Co., Inc., Kay, Thorold, 945 tons.
H. G. Craig Co., A.C.D., Donnacona, 378 rolls.
N. Y. Journal American, Markland, Liverpool, N.S., 869 rolls.
N. Y. Tribune, Inc., Markland, Liverpool, N.S., 1775 rolls.
World Telegram, Markland, Liverpool, N.S., 609 rolls.
Brooklyn Eagle, Inc., Markland, Liverpool, N.S., 729 rolls.
Herald Statesman, Inc., Markland, Liverpool, N.S., 72 rolls.
7 Seas Mercantile Transport Co., Markland, Liverpool, N.S., 286 rolls.
Richmond Newspapers, Inc., Markland, Liverpool, N.S., 1,565 rolls.

CIGARETTE PAPER

Braunsteig Co., Fort Perrot, Bordeaux, 31 cs.

COATED PAPER

F. P. Gaskell, Charles H. Landam, Glasgow, 107 cs. (for cigarette tips.)

BASIC PAPER

Commonwealth Distributors, Inc., Capitaine Potie, Antwerp, 2 cs.

DRAWING PAPER

Bankers Trust Co., Fort Perrot, Bordeaux, 9 cs.

PRINTING PAPER

Augustana Books Concern, Drottningholm, Gothenburg, 6 bls.

RAGS, BAGGINGS, ETC.

National City Bank, Capitaine Potie, Antwerp, 210 bls. dark cotton rags.
Tradesmans National Bank Trust Co., Charles H. Lanham, Glasgow, 709 bls. old webbing.
Castle & Overton, Inc., Charles H. Lanham, Glasgow, 47 bls. grey linen thread waste.
Cowa Co., Bloomington Victory, Cabedello, 278 bls. cotton picker waste.
Lainz & Co., Andalien, Havana, 97 bls. rags.
(———), Mesh Knot, Vera Cruz, 7 bls. woolen rags.
Chase National Bank, Mesh Knot, Vera Cruz, 7 bls. woolen rags.

OLD ROPE

(———), Charles H. Lanham, Glasgow, 42 bls.

CHINA CLAY

J. W. Higman Co., Inc., William H. Jackson, Fowey, 764 tons, 4 cwt. china clay.

CASEIN

E. Lang, Inc., Mormacdawn, Buenos Aires, 743 bags 44,580 kilos; 250 bags (rennet) 15,000 kilos.
Casein Co. of American Division of The Borden Co., Mormacdawn, Buenos Aires, 1,622 bags (lactic), 73,000 kilos.
Tupman Thurlow Co., Inc., Mormacdawn, Buenos Aires, 2,800 bags (ground lactic) 140,000 kilos.

WOODPULP

Perkins Goodwin & Co., Drottningholm, Gothenburg, 1,200 bls. dry sulphate pulp.

PHILADELPHIA IMPORTS

WEEK ENDING OCTOBER 19, 1946

Scott Paper Co., Alcoa Voyager, Baie Comeau, 14, 981 bls. unbleached sulphite pulp, 2,524 tons.
Jay Madden Corp., Vretaholm, Helsingfors, 369 rolls wrapping paper.
Pulp Sales Corp., Vretatolj, Helsingfors, 2,042 bls. unbleached sulphite pulp.

Market Trends

(Continued from page 51)

buyer's prices. Gunny on contract is reported coming from Britain at $4.50 ex-dock.

Rags

Cotton rags remain in a steady position with some increases noted in imports of old blue jeans and khaki material. New cotton cuttings are still very tight with little prospect of relief in sight.

Waste Paper

Demand for waste paper is still firm, although there have been reports of some backing up of old corrugated. The bale tie shortage has resulted in more loose paper stock, with a good volume of corrugated shipped this way. All high grades command top prices.

Brazil Waives Duty on Cultural Use Papers

WASHINGTON, D. C.—Certain paper for use in the publication of books has been granted duty-free entry into Brazil, according to a report to the Department of Commerce. The paper included under the decree is newsprint, common, white or colored, rough on both sides, calendered, art (couche), glazed or smooth and buffon, containing waterlines the full length and width of the paper separated transversally by spaces of 4 to 6 centimeters or containing the word "livro" in legible leters at least every 10 centimeters. To qualify for the exemption, the books for which the paper will be used must contain more than 50-pages and be of a cultural or educational nature, without commercial advertising.

Imports from the United States of paper not fulfilling the conditions specified are subject to the following import duties including the 10 percent surtax, in cruzeiros per legal kilogram: weighing less than 35 grams per square meter, white, 3.41; same, colored, 4.62; weighing from 35 to 180 grams per square meter, white, 1.76; same, colored, 2.86.

Wisconsin Plantings Reach 400 Thousand Acres

ST. PAUL, Minn.—Tree planting by public agencies in Wisconsin since 1944 has covered 305,000 acres, while farmers and other private agencies planted 94,000 acres, the Lake States Forest Experiment Station reported October 17. The average planting is about 1,100 trees per acre.

Trees by species in Wisconsin, excluding plantings by farmers and private agencies, were: 138,904,000 jack pine; 131,340,000 Norway or red pine; 26,558,000 white pine; 20,173,000 white spruce; 19,802,000 other evergreens or hardwoods.

Wisconsin, Michigan and Minnesota planted one and one-third million acres, or one billion one hundred and fifty-seven million trees.

Holyoke Mills Promote Community Chest Drive

HOLYOKE, Mass. — Labor - management committees have been set up in ten Holyoke plants in the Industrial Employees Division of the Holyoke Community Chest campaign, where management is cooperating by allowing payroll deductions and the appointment of volunteer representatives. Plants cooperating include American Tissue Mills, American Writing Paper Corp., Chemical Paper Company, Crocker-McElwain, Eureka Blank Book Company, Franklin Paper Company, National Blank Book Company, Newton Paper Company, Parsons Paper Company, Valley Paper Company and White & Wyckoff.

MISCELLANEOUS MARKETS

Office of the PAPER TRADE JOURNAL,
Wednesday, October 23, 1946.

BLANC FIXE—Raw materials remain tight as demand continues active. Pulp is currently quoted at $40 per ton, in barrels, car lots, at works; the powder is currently quoted at $60 per ton, car lots, f.o.b. works.

BLEACHING POWDER—Adequate supplies are reported to meet demand, with shipments temporarily delayed due to drum shortage. Quotations are unchanged. Prices on bleaching powder range from $2.50 to $3.10 per 100 pounds, in drums, car lots at works.

CASEIN—Current prices on processed acid-precipitated casein are reported at 48 to 49 cents per pound for domestic grades, and 45 cents per pound for Argentine grades; f.o.b. shipping point, with quality not specified at the present time.

CAUSTIC SODA—Supplies tightest ever as market remains critical. Shipments are behind schedule. Cutback production further reduces stocks. Solid caustic soda is quoted at $2.30 per 100 pounds; flaked and ground is quoted at $2.70 to $2.95 per 100 pounds. All prices car lots.

CHINA CLAY—Supplies are becoming tighter as demand continues to increase. Quotations remain unchanged. Domestic filler clay is currently quoted at from $8.50 to $9 per ton; coating clay is quoted at from $12 to $22 per ton, at mine. Imported clay is quoted at from $22 to $25 per long ton, ship side. All prices quoted in car lots.

CHLORINE — Demand continues to exceed output, market tight, stocks low. Tank cars and steel container situation slow shipments. Quotations unchanged. Chlorine is currently quoted at $2.00 to $2.25 per 100 pounds, in single unit tank cars, f.o.b. works.

ROSIN—Gum rosin in drums, per 100 pounds net, in yard, New York, B, $8.30; D, $8.30; E, $8.83; F, $9.13; G, H, I, K, M, N and WG, $9.22; WW, $9.25. All prices in car lots, rosin in bags, 5c less.

SALT CAKE — Demand increasing with supplies showing some improvement. Prices remain unchanged. Domestic salt cake is quoted at $15 per ton, in bulk. Chrome salt cake is quoted at $16 per ton. All prices in car lots, f.o.b. shipping point.

SODA ASH—Supplies continue short, demand active, previous orders filled. Export inquiry very heavy. Quotations continue unchanged. Current prices, car lots, per 100 pounds, are as follows: in bulk, $.95; in paper bags. $1.05; and in barrels, $1.35.

STARCH—Supplies are showing steady improvement. Previous orders filled. Starch prices continue unchanged. The pearl grade is quoted at $5.87 per 100 pounds; powdered starch at $6.02 per 100 pounds; both prices in bags, car lots, f.o.b. Chicago.

SULPHATE OF ALUMINA—Demand active, supply fair. Quotations continue unchanged. The commercial grades are quoted at from $1.15 to $1.20 per 100 pounds, in bags, car lots, f.o.b. works. The iron free is currently quoted at $1.75 to $2.00 per 100 pounds, in bags, at works.

SULPHUR—Strong seasonal demand is reported with stocks plentiful. Annual contracts are quoted at $16 per long ton, f.o.b. mines; the price f.o.b. at Gulf Ports is $17.50 per long ton. Prices in car lots. Sulphur prices decontrolled October 4.

TALC—Domestic and French grades are moving in fair volume with prices steady. Domestic grades are currently quoted at from $16 to $30 per ton at mines; Canadian at $24 to $30 per ton. All prices on car lots.

MARKET QUOTATIONS

All market quotations, excepting those otherwise designated as official OPA maximum prices, are based on the manufacturers' price level as of October 1-15, 1941; maximum wholesale prices are based on the merchants' maximum prices for stipulated quantities at a quoted price to all customers of a like class, as shown by the merchant's sales records of goods delivered during March, 1942. A merchant's price list in effect in March, 1942, showing quotations of actual shipments, will establish the current maximum prices.

Paper

(Delivered New York)

Standard News, per ton—

Roll, contract	$84.00	@	—
Sheets	93.00	@	—

Kraft—per cwt.—Carload Quantities Zone A, Delivered

Superstandard Wrapping	*$5.25	@	—
No. 1 Wrapping	*5.00	"	—
Standard Wrapping	*4.75	"	—
Standard bag	*4.75	"	—

*** Prices for Standard Wrapping are for 40 lb. base weight; for Standard Bag for 30 lb base weight.**

Tissues—Per Ream 24x36 (480) 10 lb. Zone 1.

Wh. No. 1 Frd.	1.10	@	1.20
Wh. No. 1 M. G.	1.10	@	1.20
Wh. No. 1½	.95	@	1.10
Wh. No. 2	1.00	@	1.10
Wh. Anti-Tar.	2.25	@	3.50
Kraft Unbl.	1.15	@	1.25
Manila No. 2	.90	@	1.05

Toilet—Per Case of 100 rolls 1 M Sheets.

Unbleached	4.47	@	5.50
Bleached	6.50	"	—

Paper Towels — Per Case of 3750 Zone 1.

Wh. Sc'ttf'd 11x13½	4.09	@	—
Br. Sgl. fold 10 in.	2.37	"	2.48
Br. M'tif'd 9½x14¼	3.48	"	—
Br. M'tif'd 9½x9¼	2.37	"	2.48

Manila—per cwt.—C. l. f. a.

No. 1 Jute	11.25	@	—
No. 1 Manila 35 lb.	6.00	"	7.00

Boards, per ton—

News	*59.00	@	—
Chip	*58.00	@	—
Sgl. Mla. Ll. Chip	*67.00	@	—
White Pat. Coated	*86.00	@	—
Kraft Liners 50 lb.	*74.00	"	—
Binders Boards	84.00	"	116.00

*** OPA Base Prices per 10 tons. Less than 10 tons but over 3 tons, add $2.50; three tons or less, add $5; regular 35-39 basis, add $5; basis 40-49, add $2.50; basis 91-100, add $2.50; basis 101-120, add $5.**

The following are representative of distributors' resale prices, all deliveries in Zone 1:

Rag Content Bonds and Ledgers—White, Assorted Items

	Bonds	Ledgers
100% Rag Ext. No. 1	$39.75@$46.75	$40.90@$48.00
100% Rag	32.85 " 38.50	34.00 " 40.00
85% Rag	.... "	30.55 " 38.75
75% Rag	24.30 " 28.50	24.45 " 30.00
65% Rag	.... "	.... " ....
50% Rag	20.05 " 24.50	21.25 " 25.75
25% Rag	17.85 " 21.75	19.00 " 23.25

Colors at $1.00 cwt. extra.

Sulphite Bonds and Ledgers.. White, Assorted Items

	Bonds	Ledgers
No. 1	$12.00@$14.50	$13.15@$16.00
No. 2	11.25 " 13.75	12.25 " 15.00
No. 3	.... "	.... " ....
No. 4	10.60 " 13.00	11.75 " 14.25

Colors $1.00 cwt. extra.

Free Sheet Book Papers—White, Cased Paper

No. 1 Glossy Coated	$14.70	@ $16.75
No. 2 Glossy Coated	13.75 "	15.50
No. 3 Glossy Coated	13.20 "	16.00
No. 4 Glossy Coated	12.80 "	14.50
No. 1 Antique (Watermarked)	11.35 "	12.75
No. 2 Offset	10.65 "	12.35
A Grade E. F.	10.60 "	12.00
A Grade S. & S. C.	11.00 "	12.50
B Grade E. F.	10.30 "	11.75
B Grade S. C.	10.70 "	12.25
C Grade E. F.	10.00 "	11.50
C Grade S. C.	10.40 "	12.00
D Grade E. F.	9.70 "	11.00
D Grade S. & S. C.	10.10 "	11.50

Ivory & India at $.50 cwt. extra.

Wood Pulp

OPA Maximum Prices and Canadian Manufacturers' Prices, Less Freight Not Exceeding OPA Allowances.

Bl. Softwood Sulphite	$103.50
Unbl. Softwood Sulphite	90.00
Bl. Hardwood Sulphite	100.50
Unbl. Hardwood Sulphite	87.50
N. Bleached Sulphate	103.50
S. Bleached Sulphate	97.00
N. Semi-Bleached Sulphate	98.00
S. Semi-Bleached Sulphate	91.50
N. Unbl. Sulphate	83.50
S. Unbl. Sulphate	76.50
Bleached Soda	93.50
Unbleached Soda	88.00
Groundwood	64.00
Ground—Machine Dried	67.00
Sulphite Screenings	50.00
Sulphate Screenings	44.00
Groundwood Screenings	37.50
N. Unbl. Sulphate Siderurus	83.50
S. Unbl. Sulphate Siderurus	76.50
Standard Newsprint Siderurus	64.00

Transportation Allowances

Applying to Producers of Wet Wood Pulp.

	Below 50% Air Dry Weight
Northeast	$12.50
Lake Central	12.50
Southern	15.00
West Coast (in area)	9.50
West Coast (out area)	15.50

	50%-80% Air Dry Weight
Northeast	$10.50
Lake Central	10.50
Southern	13.00
West Coast (in area)	8.50
West Coast (out area)	14.50

Applying to Producers of Dry Wood Pulp.

	Above 80% Air Dry Weight
Northeast	$7.50
Lake Central	7.50
Southern	10.00
West Coast (in area)	6.50
West Coast (out area)	12.50

Should freight charges actually exceed these allowances, the difference may be added to the maximum prices.

Domestic Rags

New Rags
(Nominal Prices Delivered to Mill + 5% Brokerage)

Shirt Cuttings—New White, No. 1	7.25	@	Nominal
Silesias No. 1	5.75	"	"
New Unbleached	7.50	"	"
Blue Overall	5.50	"	"
Fancy	3.50	"	"
Washables	3.00	"	"
Bleached Khaki Cutting	4.25	"	"
Unbleached Khaki Cuttings	3.50	"	"

Old Rags

White, No. 1—			
Repacked	3.80	@	Nominal
Miscellaneous	3.20	"	"
White, No. 2—			
Repacked	2.90	"	"
Miscellaneous	2.65	"	"
Thirds and Blues—			
Repacked	2.20	"	"
Miscellaneous	1.30	"	"
Roofing Rags—			
No. 1	1.55	"	"
No. 2	1.45	"	"
No. 3 (bagging)	1.35	"	"
No. 4	1.35	"	"
No. 5A	1.35	"	"
Old Manila Rope	5.75	"	"

Foreign Rags

(All Prices Nominal)

New Rags

New Dark Cuttings	6.00	@	Nominal
New Mixed Cuttings	6.50	"	"
New Light Silesias	5.75	"	"
Light Flannelettes	5.75	"	"
New White Cuttings	12.00-14.00		
New Light Oxfords			Nominal
New Light Prints	8.00-10.00		

Old Rags

No. 1 White Linens	8.50	@	Nominal
No. 2 White Linens	7.50	"	"
No. 3 White Linens			Nominal
No. 4 White Linens	3.25	@	Nominal
No. 1 White Cotton	4.75	"	"
No. 2 White Cotton	3.75	"	"
No. 3 White Cotton	3.00	"	"
No. 4 White Cotton	2.20	"	"
Extra Light Prints	2.40	"	"
Ord. Light Prints	5.50	"	"
Med. Light Prints	4.75	"	"
Dutch Blue Cottons			Nominal
French Blue Linens			Nominal
Checks and Blues	4.00	"	"
Linsey Garments	4.00	"	"
Dark Cottons	3.60	"	"
Old Shopperies	3.35	"	"
New Shopperies	3.50	"	"
French Blues			Nominal

BAGGING

(Prices to Mill, f.o.b. N. Y.)

Gunny No. 1—			
Foreign	4.00	@	Nominal
Domestic	3.30	"	"
Wool Tares, light	4.00-4.75		
Wool Tares, heavy	4.50	@	Nominal
Bright Bagging	3.50	"	"
Manila Rope—			
Foreign			Nominal
Domestic	5.75	@	Nominal
Jute Strings	4.50	"	"
No. 1 Sisal Strings	3.00	"	"
Mixed Strings	1.50	"	"

Waste Paper

Nominal Prices to Mills

(Dollars Per Ton)

F.o.b. New York, Baled

No. 1 Hard White Envelope Cuts, one cut	$67.50	@	—
No. 1 Hard White Envelope Cuts	62.50	"	—
No. 1 Hard White Shavings, unruled	57.50	"	—
No. 1 Hard White Shavings, ruled	50.00	"	—
Soft White Shavings, one cut	57.50	"	—
No. 1 Soft White Shavings	50.00	"	—
Soft White Shavings, Misc.	43.00	"	—
No. 1 Fly Leaf Shavings	33.50	"	—
No. 2 Fly Leaf Shavings	22.50	"	—
No. 1 Groundwood Fly Leaf Shavings	25.00	"	—
No. 2 Mixed Groundwood Fly Leaf Shavings	18.50	"	—
Mixed Colored Shavings	15.50	"	—
Mixed Groundwood Colored Shavings	18.00	"	—
Overissue Magazines	33.50	"	—
No. 1 Heavy Books & Magazines	38.50	"	—
Mixed Books	22.00	"	—
No. 1 White Ledger	46.00	"	—
No. 2 Mixed Ledger, colored	40.00	"	—
New Manila Envelope Cuttings, one cut	57.50	"	—
New Manila Envelope Cuttings	53.00	"	—
Extra Manilas	39.00	"	—
Mixed Kraft, Env. & Bag Cuttings	55.00	"	—
Kraft Envelope Cuttings	65.00	"	—
Triple Sorted, No. 1 Brown Soft Kraft	50.00	"	—
New 100% Kraft Corrugated Cuttings	45.00	"	—
No. 1 Assorted Old Kraft	35.00	"	—
New Jute Corrugated Cuttings	18.50	"	—
Old 100% Kraft Corrugated Containers	35.00	"	—
Box Board Cuttings	14.50	"	—
White Blank News	33.00	"	—
Overissue News	22.00	"	—
No. 1 News	20.00	"	—
No. 1 Mixed Paper	19.00	"	—
Old Corrugated	28.00	"	—
Mill Wrappers	22.00	"	—

Twines

All Prices Nominal

(F. o. b. Mill)

(Soft Fiber)

Coarse Polished—			
India	.26	@	—
White Hemp	.26	"	—
Fine Polished—			
Fine India	.31	"	—
Unpolished—			
Box	.20¼	"	—
Paper Makers	.20	"	—
Tube Rope	.22	"	—
Wall Paper	.23½	"	—
Wrapping	.26	"	—
Soft Fiber Rope	.22	"	—
Cotton	.28	"	—

(Hard Fiber)

Medium Java	.23	"	—
Mex. Sisal	.21	"	—
Manila	.33	"	—

PHILADELPHIA

Domestic Rags (New)

(Price to Mill)

Shirt Cuttings—	
New White No. 1	.07¾
New White No. 2	.05¾
Light Silesias	.05¾
Black Silesias, soft	.03½
New Unbleached	.07½
Washable Prints	.04¾
Washable No. 1	.03
Blue Overall	.05½
Cottons—According to grades—	
Washable Shredding	.01¾
Fancy Percales	.04¾
New Black Soft	.03¾
Khaki Cuttings—	
Unbleachable Cotton Cuttings	.03½
Bleachable Cotton Cuttings	.04¾
Men's Corduroy	.03½
Ladies' Corduroy	.03
Cottonades	.03¾

Domestic Rags (Old)

White No. 1—Repacked	3.80	@	—
Miscellaneous No. 1	3.20	"	—
Miscellaneous No. 2	2.65	"	—
White No. 2—Repacked	2.90	"	—
Thirds and Blues—			
Miscellaneous	1.80	"	—
Repacked	2.20	"	—
Black Stockings—			
(Export)			Nominal
Roofing Stock—			
Foreign No. 1			Nominal
Domestic No. 1	1.55	"	—
Domestic No. 2	1.45	"	—
Roofing Bagging	1.35	"	—
Old Manila Rope	5.75	"	—

Bagging

(F. o. b. Phila.)

Gunny No. 1—			
Foreign			Nominal
Domestic	3.00	@	3.50
No. 1 Clean Bright—Sisal Strings	.04	"	—
No. 2 Clean Bright—Sisal Strings	.03	"	—
Sisal Jute	.02½	"	.02¾
Scrap—			
No. 1	3.25	"	3.50
No. 2	1.75	"	1.80
Wool Tares, heavy	4.00	"	4.25
No. 1 New Light Burlap	3.00	"	4.00
New Burlap Cuttings	3.75	"	4.00

Old Papers

(F. o. b. Phila.)

OPA Maximum Prices, Baled

No. 1 Hard White Envelope Cuts, one cut	3.37½	@	—
No. 1 Hard White Shavings, unruled	2.87½	"	—
Soft White Shavings, one cut	2.50	"	—
White Blank News	1.65	"	—
Soft White Shavings, Misc.	1.23	"	1.28
No. 1 White Ledger	2.30	"	—
No. 2 Ledger, colored	2.00	"	—
No. 1 Heavy Books & Magazines	1.92½	"	—
Overissue Magazines	1.67½	"	—
New Manila Envelope Cuttings	2.65	"	—
No. 1 Assorted Old Kraft	1.75	"	—
No. 1 Mixed Paper	.95	"	—
Box Board Cuttings	.72½	"	—
Kraft Corrugated Cuttings	2.25	"	—
Old Corrugated Containers	1.40	"	—
Overissue News	1.00	"	—
No. 1 News	1.00	"	—

BOSTON

Old Papers

(F. o. b. Boston)

OPA Maximum Prices, Baled

No. 1 Hard White Shavings, unruled	2.87½	@	—
No. 1 Hard White Shavings, ruled	2.50	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 Fly Leaf Shavings	1.67½	"	—
No. 2 Fly Leaf Shavings	1.12½	"	—
No. 1 Groundwood Fly Leaf Shavings	1.25	"	—
No. 2 Groundwood Fly Leaf Shavings	.90	"	—
Mixed Colored Shavings	.75	"	—
New Manila Envelope Cuts, one cut	2.87½	"	—
Hard White Envelope Cuts, one cut	3.37½	"	—
Triple Sorted No. 1 Brown Soft Kraft	2.50	"	—
Mixed Kraft Env. & Bag Cuttings	2.75	"	—
Kraft Envelope Cuttings	3.25	"	—
No. 1 Heavy Books & Magazines	1.92½	"	—
New Manila Envelope Cuts, one cut	2.87½	"	—
New Manila Envelope Cuttings	2.65	"	—
White and Colored Tabulating Cards	2.25	"	—
Ground Wood Tabulating Cards	1.35	"	—
White Blank News	1.65	"	—
No. 1 Assorted Old Kraft	1.75	"	—
No. 1 Mixed Paper	.95	"	—
Overissue News	1.10	"	—
Box Board Cuttings	.72½	"	—
New Corrugated Cuttings, Kraft	2.25	"	—
Old 100% Kraft Corrugated Containers	1.75	"	—
Old Corrugated Containers	1.40	"	—
Jute Corrugated Cuttings	1.07½	"	—

Bagging

(F. o. b. Boston)

Gunny Bagging—			
Foreign			(nominal)
Domestic	2.75	@	2.90
Sisal Rope No. 1	*4.75	"	—
Sisal Rope No. 2	* —	"	4.00
Mixed Rope	1.60	"	—
Transmission Rope—			
Foreign			(nominal)
Domestic	2.75	"	3.00
Manila Rope—			
Foreign			(nominal)
Domestic	5.75	"	—
Soft Jute Rope	4.50	"	5.00
Jute Carpet Threads	3.00	"	3.50
Bleachery Burlap	8.50	"	9.00
Scrap Burlap—			
Foreign			(nominal)
Domestic	3.00	"	3.25
South America	—	"	3.25
Wool Tares—			
Foreign			(nominal)
Domestic	4.25	"	—
Aust. Wool Pouches	—	"	3.40
New Zealand Wool Pouches	—	"	3.30
New Burlap Cuttings	4.75	"	5.00
Heavy Baling Bagging	4.00	"	4.20
Paper Mill Bagging	2.50	"	3.00
No. 2 Roofing Bagging	1.35	"	—

* OPA Maximum Prices.

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints	.04½	@	.04¾
Fancy Percales	.04¾	"	.05
New White No. 1	.06¾	"	.07
New Light Flannelettes	.05½	"	.06
Canton Flannels, Bleached	.06	"	.06¼
Underwear Cutters, Bleached	.06¾	"	.06¾
Underwear Cutters, Unbleached	.05¾	"	.06
Silesias No. 1	.06	"	.06¼
New Black Silesias	.03	"	.03½
Red Cotton Cuttings	.03½	"	.04
Soft Unbleached	.06½	"	.06¾
Blue Cheviots	.05½	"	.06
Fancy	.02¾	"	—
Washable	.02¾	"	—
Khaki Cuttings	.02¾	"	.03
O. D. Khaki	.03½	"	.03¾
Corduroy	.03¼	"	.03¾
New Canvas	.06¼	"	.06½
B. V. D. Cuttings	.06¼	"	.06¾

Domestic Rags (Old)

(F. o. b. Boston)

White No. 1—Repacked	3.80	@	—
Miscellaneous	3.20	"	—
White No. 2—Miscellaneous	2.65	"	—
Twos and Blues, Repacked	2.20	"	—
Old Blue Overalls	2.25	"	2.30
Thirds and Blues, Repacked	2.20	"	—
Miscellaneous	1.80	"	—
Black Stockings	3.50	"	4.00
Roofing Stock—			
No. 1	1.55	"	—
No. 2	1.45	"	—
No. 3	1.35	"	—
No. 4	1.35	"	—
No. 5, Quality A	1.35	"	—
Quality B	1.20	"	—
Quality C	.95	"	—
Old Manila Rope	5.75	"	—

* OPA Maximum Prices.

Foreign Rags

(F. o. b. Boston)

Canvas	(nominal)
Dark Cottons	(nominal)
Dutch Blues	(nominal)
New Checks and Blues	(nominal)
Old Fustians	(nominal)
Old Linsey Garments	(nominal)
New Silesias	(nominal)

CHICAGO

Waste Paper

(F. o. b. Chicago)

OPA Maximum Prices, Baled

Shavings—			
No. 1 Hard White Envelope Cuts, one cut	3.37½	@	—
No. 1 Hard White Shavings, unruled	2.87½	"	—
No. 1 Soft White Shavings	2.50	"	—
No. 1 White Ledger	2.30	"	—
No. 1 Heavy Books & Magazines	1.92½	"	—
White Blank News	1.65	"	—
Mixed Kraft Env. & Bag Cuttings	2.75	"	—
No. 1 Assorted Old Kraft	1.75	"	—
Overissue News	1.10	"	—
No. 1 News	1.00	"	—
No. 1 Mixed Paper	.95	"	—
No. 1 Roofing Rags	1.55	"	—
No. 1 Roofing Bags	1.45	"	—

H. M. SPAIN & CO.
COMMERCIAL FORESTERS
COMMERCE TITLE BUILDING
MEMPHIS, TENN.

LANGSTON

Slitters and Roll Winders

Make clean, square-edged rolls that meet the specifications of the most exacting customer

SAMUEL M. LANGSTON COMPANY, Camden, New Jersey

Gurley S-P-S Tester

PAPER TESTING INSTRUMENTS

ENGINEERING, SURVEYING, HYDRAULIC ENGINEERING AND METEOROLOGICAL INSTRUMENTS.

Write for Catalogs

W. & L. E. GURLEY
TROY, N. Y., U. S. A.

AMYLIQ

the modern means for preparing coatings and tub-sizings from starch.

WALLERSTEIN COMPANY, INC.
180 Madison Avenue · New York 16

CAMACHINE 19 is a fast winder for newsprint, book and kraft mills, handling webs from 117" to 192".

GET FACTS!

WRITE FOR THIS FOLDER

CAMERON MACHINE COMPANY
61 POPLAR STREET · BROOKLYN 2, N. Y.

K-121-B — DEINKING — DECOLORIZING and COOKING PROCESSES — K-C-2

THE KINSLEY CHEMICAL COMPANY
12500 Berea Road — Cleveland, Ohio

THE MAYER MACHINE COMPANY, INC.

Manufacturers of
Paper Coating Machines
1155 Scottsville Road, Rochester 11, N. Y.
Waxing & Oiling, Carbon, Laboratory, Flat Room Converting and Measuring and Roadmarking.

TENAX
"TENAX FELTS ARE TOUGH"

WHEN ORDERING FELTS

. . . Specify TENAX. There's a TENAX FELT to meet every specification, in making paper, board and allied products. Let TENAX bring you peak operating efficiency and greater economy!

LOCKPORT FELT COMPANY
NEWFANE, N. Y.

Serving the paper industry since 1891

The CLEARING HOUSE

Address replies to advertisements appearing under Box numbers in care of PAPER TRADE JOURNAL, 15 West 47th Street, New York 19, N. Y.

Copy for Classified Advertisements must be in our office on Monday preceding publication

HELP WANTED

HELP WANTED

SUPERINTENDENT FOR FELT MILL

We desire a man thoroughly experienced in making "Felt" for roofings or floor coverings.

This is a 70 Ton—single machine mill, located at Stockport, New York—eight miles from Hudson, New York. Nice company house provided free for living quarters. Former superintendent passed away.

An unusual opportunity because our company is fully integrated. We make both linoleums and roofings at our other plants.

Write, wire or phone to:

PRESIDENT,

BONAFIDE MILLS, INC.

295 Fifth Avenue, New York, 16, N. Y.

Telephone: Murray Hill 3-1570 **O-24**

CHIEF ORDER CLERK WANTED

Must know box business, handle inside sales, familiar with box specifications, laboratory tests and designs, working knowledge of freight classification rules, particularly 5 & 41; age 25 to 35; write age and salary desired. Box 032. Murphy A.A., 95 Nassau St., N.Y.C. O-24

WANTED

Research and development chemist or chemical engineer for work in fields such as sizing, application of synthetic resins, etc. Graduate training and paper mill experience desirable. Responsible position with excellent opportunities. Address reply to Box 46-720 care Paper Trade Journal. O-31

SALARIED POSITIONS

$8,000-$25,000. This thoroughly organized confidential service of 26 years' recognized standing and reputation carries on preliminary negotiations for supervisory, technical and executive positions of the calibre indicated. Retaining fee protected by refund provision. Identity covered and present position protected. Send only name and address for details.

R. W. BIXBY, INC.
117 Dun Bldg., Buffalo 2, N. Y.

CHEMICAL ENGINEER

sought for responsible position in development engineering by prominent firm with midwestern plant and laboratories. Broad training in fundamentals of chemistry and engineering required. Experience in design of industrial equipment desirable. Background in paper converting helpful but not essential.

This position offers a unique opportunity for advancement in the expanding engineering activities of a sound corporation with broad technical interests and stimulating leadership.

Please give detailed information in reply. Address Box 46-711 care Paper Trade Journal. O-24

ENGINEER-DRAFTSMAN

For Paper Mill in Massachusetts. Young man 25-30 years of age. Good appearance and personality. Preferably with some paper mill experience. Salary $225.00-$250.00 per month. Address Box No. 46-676 care Paper Trade Journal. O-24

PULP MILL SUPERINTENDENT WANTED BY SOUTHERN KRAFT MILL — Must have technical education and practical experience. 30-38 years of age. Send detailed information to Box 46-735 care of Paper Trade Journal, including education, experience and salary desired. O-31

HELP WANTED

CHARLES P. RAYMOND SERVICE, Inc.

294 Washington St., Boston, Mass.

Specializing in Paper Mill Personnel Positions Now Open.

General superintendent, specialty paper mill superintendent and industrial engineers for Canada
Chemist for Mid-West $6000 year
Mechanical designers and draftsmen for mills and firms building paper and pulp mill machinery
Four foreman, wet machines
Four boss (cylinder), machine tenders, back tenders, master mechanic and electrician for new Northern mill
Back tender, Fourdrinier Harper machines, and others

We invite correspondence (Strictly Confidential) with paper and pulp mill executives seeking new positions. O-24

GENERAL SUPERINTENDENT WITH A COMPLETE KNOWLEDGE OF THE MANUFACTURE OF BOOK AND BOND GRADES OF WRITING PAPER. MUST BE THOROUGHLY COMPETENT, WITH HIGHEST RECOMMENDATIONS, FOR A SELF-CONTAINED MILL LOCATED IN NEW ENGLAND. ADDRESS BOX 46-744 CARE PAPER TRADE JOURNAL. O-31

GUMMING SUPERVISOR—Wanted by large well established paper converter. Should have practical experience in production of gummed paper and cloth tapes and gummed specialty papers. Give full details of qualifications and experience. Address Box 46-612 care Paper Trade Journal. D-19

COLLEGE GRADUATE-MECHANICAL ENGINEER—25-30, two or more years practical experience sulphate mill operation. Position with consulting engineering firm. Only those having qualifications noted will be considered. Address Box 46-714 care Paper Trade Journal, giving education, experience, salary required. O-24

WANTED—Superintendent for two Harper fourdrinier machine mill located in New York State making toilet tissue. Good opportunity for aggressive experienced man. In reply, please give references, salary expected and experience. Address Box 46-727 care Paper Trade Journal. O-31

WANTED—3 Beater Engineers experienced on Kraft Papers—mill located in Northern part of Mexico. Address Box 46-736 care Paper Trade Journal. O-31

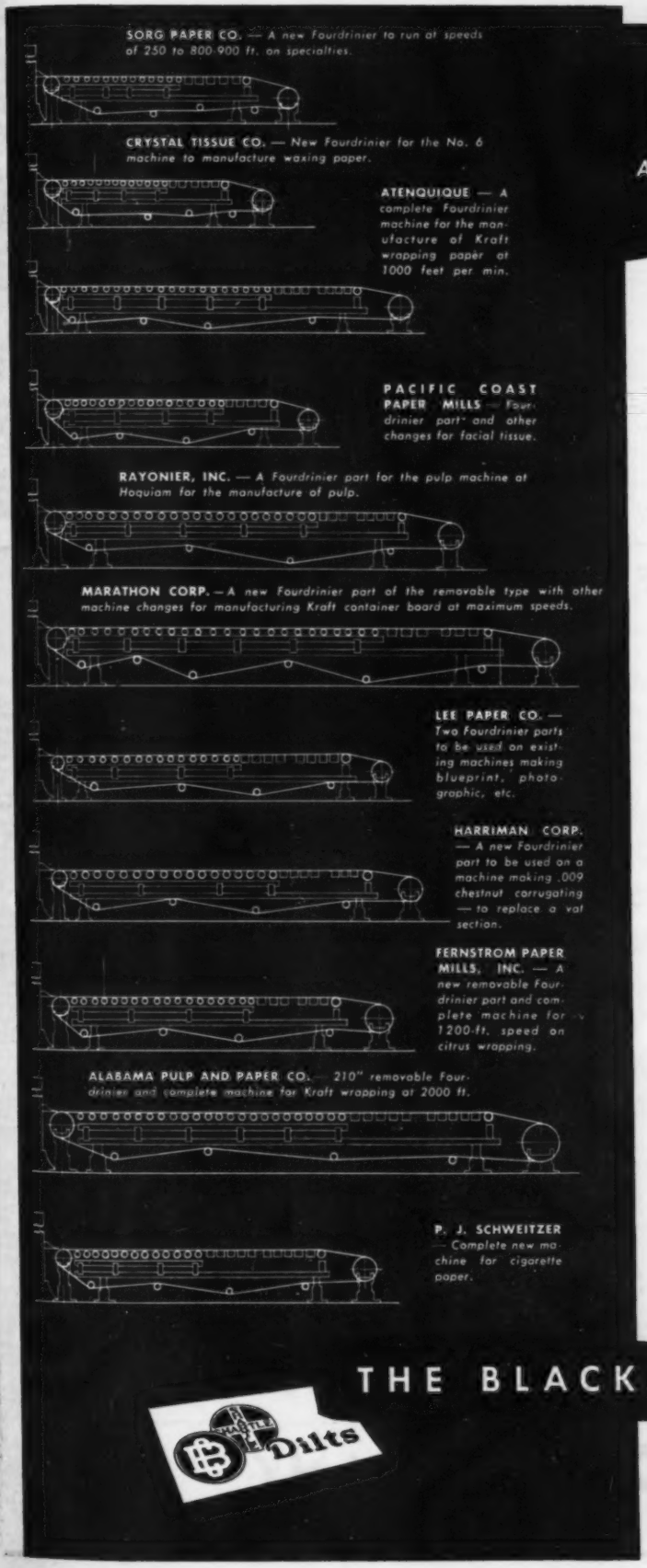
POWER PLANT SUPERVISOR—Experienced Boilers and Turbo-Generators. Under 40 years of age. Write, giving details of age, experience, education, salary desired. ORANGE PULP AND PAPER MILLS, INC., Orange, Texas. O-31

MACHINE DESIGNER:—Graduate Mechanical Engineer or equivalent. Should have experience with web printer and bag making machinery. Permanent position in large midwestern plant manufacturing printed and converted food packages. Real opportunity for one who has creative ability. Reply to Box 46-738 care Paper Trade Journal. N-14

WANTED—Research and development chemist or chemical engineer for work in fields such as sizing, application of synthetic resins, etc. Graduate training and paper mill experience desirable. Responsible position with excellent opportunities. Address reply to Box 46-740 care Paper Journal. N-7

SUPERINTENDENT for specialty bag plant, Philadelphia. Good opportunity for the right man. Replies confidential. Address Box 46-741 care Paper Trade Journal. O-31

WANTED—Experienced Master Mechanic for board mill in New England. State experience, salary and availability. Address Box 46-742 care Paper Trade Journal. N-7


SORG PAPER CO. — A new Fourdrinier to run at speeds of 250 to 800-900 ft. on specialties.
CRYSTAL TISSUE CO. — New Fourdrinier for the No. 6 machine to manufacture waxing paper.
ATENQUIQUE — A complete Fourdrinier machine for the manufacture of Kraft wrapping paper at 1000 feet per min.
PACIFIC COAST PAPER MILLS — Fourdrinier parts and other changes for facial tissue.
RAYONIER, INC. — A Fourdrinier part for the pulp machine at Hoquiam for the manufacture of pulp.
MARATHON CORP. — A new Fourdrinier part of the removable type with other machine changes for manufacturing Kraft container board at maximum speeds.
LEE PAPER CO. — Two Fourdrinier parts to be used on existing machines making blueprint, photographic, etc.
HARRIMAN CORP. — A new Fourdrinier part to be used on a machine making .009 chestnut corrugating — to replace a vat section.
FERNSTROM PAPER MILLS, INC. — A new removable Fourdrinier part and complete machine for 1200-ft. speed on citrus wrapping.
ALABAMA PULP AND PAPER CO. — 210" removable Fourdrinier and complete machine for Kraft wrapping at 2000 ft.
P. J. SCHWEITZER — Complete new machine for cigarette paper.

BLACK-CLAWSON FOURDRINIERS

ALL SIZES - - - ALL SPEEDS NEW FEATURES

Manpower and material shortages notwithstanding, business is booming at "*Black's,*" at *Shartle* and at *Dilts.* The current headliners are Fourdriniers, Hydrapulpers and waxing machines at the three divisions, respectively.

●

Of particular interest, perhaps, are the various Fourdriniers recently built or building at the Black-Clawson division, at Hamilton, diagrammed for size as here shown, with a brief description of each of them.

Shartle Dilts

THE BLACK-CLAWSON CO.

HAMILTON, OHIO

Divs.: Shartle Bros. Machine Co., Middletown, Ohio
Dilts Machine Works, Fulton, New York

Assoc.: Alexander Fleck Limited, Ottawa, Ont., Canada

HELP WANTED

WANTED—Progressive Mill with expansion program under way is in need of a man familiar with the receiving and handling of paper stocks and pulps used in the manufacture of Folding Boxboards. Excellent opportunity for the right man. Address Box 46-746 care Paper Trade Journal. N-14

SITUATIONS WANTED

ENGINEER-OPERATOR

With wide experience in stock preparations, mill design and operation for specialty papers and for board.

Can select most efficient equipment and supervise layout to make high grade wall board from many kinds of wood.

Box 46-672 care Paper Trade Journal. O-31

CHEMIST—with six years experience desires position of responsibility in Fine Paper Mill. Experienced in Manufacture of Cigarette, Carbon, Bond Banknote papers. Supervision of Cooking, Bleaching of Flax, Hemp and Cotton. Accommodations for family essential. Address Box 46-673 care Paper Trade Journal. O-24

SITUATIONS WANTED

CHEMIST
College Graduate

With 10 years experience in operations in Rag pulp mills and in bank note, bond, carbon, cigarette, stationery and resin treated papers. Special studies and operation on cooking, bleaching and stock preparation of cotton, hemp and flax fibers. Familiar with stationery converting problems. At present employed but desire position with future. Foreign positions acceptable. Available for personal interview within reasonable distance. Address Box 46-737 care Paper Trade Journal. N-7

TECHNICAL DIRECTOR — MILL MANAGER WILL BE AVAILABLE WITHIN 30 DAYS. BROAD EXPERIENCE IN LAMINATING AND COATING. EXPERIENCED IN PRODUCTION, CONTROL, DEVELOPMENT AND SALES RESEARCH. COMPLETE REFERENCES FURNISHED. ADDRESS BOX 46-697 care PAPER TRADE JOURNAL. O-24

CHEMICAL ENGINEER — B. CH. E. with three years industrial experience in textiles and petroleum, desires change. Thorough engineering background, resourceful and dependable. Interested in progressive paper products plant in south or southwest. Address Box 46-747 care Paper Trade Journal. O-24

SITUATIONS WANTED

PLANT MANAGER—Thorough experience in converting paper and boards; wants change to position offering better opportunity. Excellent production and labor relations background. Address Box 46-694 care Paper Trade Journal. O-31

FOURDRINIER EXECUTIVE — Ten years with one of America's foremost mills. Experience covers control and color work. Highly trained. Address Box 46-700 care Paper Trade Journal. O-31

CHEMIST, EXPERIENCED raw MATERIALS, PROCESS, and PRODUCT control. West or Southwest preferred, but not essential. Address Box 46-703 care Paper Trade Journal. O-31

MANAGER — Controller etc. can handle all phases of the raw stock or converting end of the paper business. Address Box 46-734 care Paper Trade Journal. N-7

FELT MILL SUPERINTENDENT — Exceptional experience. Rebuilding—operation—consulting. One of the best men in the industry. Address Box 46-699 care Paper Trade Journal. O-31

EXECUTIVE POSITION by mature, technically trained man, experienced in manufacturing, management and sales. Address Box 46-687 care Paper Trade Journal. O-31

FOR SALE

BEATERS
1—2000 lb. Holyoke-Iron Tub Beater.
2—1200 lb. E. D. Jones (no tubs).
1—1000 lb. Dayton Beater (no tub).
1—400 lb. Gavit—iron tub beater.
1—Breaker Beater—Dilts Bandless Roll 62" diameter x 54" face—70 tons daily capacity. Equipped with Shartle Bros. Ragger.
1—Bandless Beater Roll, 60" diameter x 54" face.

BLOWERS
2—Buffalo Forge Company—Size 7—Duplex Conoidal steel plate Blowers. Ball bearing.

CALENDER STACKS
1—5 roll 84" face—Farrel.
1—6 roll—72" face.
1—7-roll 36" Holyoke Machine. (supercalender)

CENTRAP
1—Shartle Brothers Centrap.

COATING MACHINE
1—26" six roll coating machine.

CYLINDER MOULDS
1—30" diameter x 74" face.
3—30" diameter x 54" face.
1—30" diameter x 75" face.
1—36" diameter x 84" face.
1—36" diameter x 80" face.
2—36" diameter x 72" face.
4—30" diameter x 72" face.

DOCTORS
14—Dillon Doctors—complete with accessories—98" face.

DRIVES
4—Smith & Winchester Drives.
1—Moore & White mortise gear drive.
1—D. O. James 75 H.P. Speed Reducer with couplings and motor base. Ratio 2.16 to 1. 900 RPM to 418 RPM.
1—#7½ Reeves.

DRYERS
16—36" diameter x 115" face.
1—28" diameter x 76" face.
1—48" diameter x 94" face.
1—24" diameter x 84" face. (Baby)
8—36" diameter x 64" face, with frames gears and bearings.
2—25" x 120" (Baby Dryers).
1—48" x 100".
1—36" diameter x 38" face.

ERKENSATORS
6—I. W. E. Erkensators—bronze construction—complete with motors, starters and distributing box.

FLAT SCREEN
1—4 plate Flat Screen.

HYDRAULIC PRESSES
1—Lake Erie Engineering Co., 78 ton, platen 12" x 12".
1—Watson Stillman, 60 ton, platen 14" x 14", with triplex pump and motor.

JORDANS
1—#2 Emerson, with 125 h.p. motor.
2—Noble & Wood, Pony Monarch, Belt Driven.
1—No. 2 Miami Jordan.
1—No. 9 Emerson Jordan—for direct connection to a motor.
1—Noble and Wood, Monarch, new fillings.

MOTOR
1—25 h.p. motor, including starting equipment.

PULP EQUIPMENT
1—32" three pocket Glens Falls Grinder (for 27" wood).

PULP SCREEN
1—IMPCO centrifugal pulp screen design No. 3.

PULPER
1—Jones Pulper.

PULVERIZER
1—Erie coal pulverizer.

PUMPS
1—Buffalo Pump—5500 g.p.m. direct connected to 100 H.P. Motor (30' head).
Various sizes of Centrifugal and Plunger Pumps. Write us regarding your particular requirements.

REDUCERS
1—Westinghouse Gear Motors—25 h.p.—115 output r.p.m.—3/60/440.

REELS
1—72" Downingtown Expansion Reel.
1—2 Bowl Reel — 112" face — bowls 30" diameter.
1—2 Bowl Reel—110" face.

ROLLS
500—Brass tube—steel tube—rubber covered iron rolls—various sizes.

ROTARY SCREENS
3—Moore & White Rotary Screens (alternating diaphragm type).

SAVEALL
1—Saveall 36" diameter x 96" face cylinder mold. (With iron end vat.)

SCREEN PLATES
36 plates—43 x 11⅛"—.050 cut—bevel edges.
24 plates—Recently recut .008.
12 plates—Recently recut .035.
Also other sizes and cuts in stock.

SHREDDERS
1—No. 25 CRSE Mitts & Merrill Hog.
1—Gilman Shredder.
1—Waterville Shredder.

SHEETERS
1—128" Moore & White Sheeter with layboy.
1—48" Langston heavy duty chopper (this is a combination machine, combining a slitter, scorer, sheeter and chopper.)

SLITTERS AND WINDERS
1—36" Beck Razor Blade type Slitter & Winder.
1—60" Moore & White Slitter and Winder set for ½" slits.
1—60" Moore & White Slitter and Winder set for 7/16" slits.
1—120" Moore & White 4 drum slitter.
1—80" 2 drum Warren Winder.

STOCK PUMPS
1—7¾ x 12 duplex Moore & White.
1—12 x 20 Triplex Shartle.
1—8 x 18 Duplex Friction Co.
1—10 x 12 open impeller. (All lead).
Numerous other Centrifugal Stock Pumps Advise us to your requirements.

SUCTION BOX
1—Nash 100" face Suction Box.

SUCTION FELT ROLLS
2—Downingtown Suction Felt Rolls—(10" diameter x 101" face and 10" diameter x 107" face).

TOILET AND TOWEL MACHINES
1—65" Towel Machine.
1—85" Toilet Machine.

V-BELT DRIVES
1—{23" diameter x 14" face, 10 grooves.
{13" diameter x 14" face, 10 grooves.

VACUUM PUMPS
1—#6 Nash Hytor.
2—#4 Nash Hytor.
1—No. 7 Sturtevant Vacuum Pump.

WET MACHINE
1—74" Moore & White.

We are always in the market to purchase your surplus or idle machinery. What have you to offer?
Wanted Cylinder and Fourdrinier Machines (complete mills).

Paddy Ross, Pres. **J. J. ROSS COMPANY** Ben Kurs, Treas.

250 Frelinghuysen Ave. Tel.—Bigelow 3-3720 Newark 5, N. J.

TELEPHONE
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CABLE ADDRESS: JACK ROSS

ROSS PAPER MACHINERY CO.

265 PASSAIC STREET
NEWARK 4, N. J.

CONVERTING
PAPER MAKING EQUIPMENT

NEW, USED, REBUILT
PAPER AND PULP MACHINERY

JACK ROSS, President

DANBURY MIXER—1 Farrel Birmingham 16", complete. Photograph on request.

AIR HOISTS
2—Two-Ton Ingersoll Rand
2—Five-Ton Ingersoll Rand

BEATERS
2—1000 lb. Horne Iron Tub.
3—1200 lb. E. D. Jones Iron Tub Beaters with washers.
2—1200 lb. E. D. Jones Beater—no tubs.
2—Valley Iron 750 lbs. Iron Tub Beaters, with Steel Link Belt Drive.
1—1200 lb. Noble and Wood—no tub. Spare new fillings for roll.

BIRD SCREEN PLATE
17 Plate—40 cut. New condition.

BLEACHERS
3—Fletcher high density bleachers—used 3 months.

BLOWERS
1—American ball bearing blower, size 17" x 23" for motor drive.
1—American Blower, size 40. For belt drive.

CALENDER DOCTORS
1 set of 10 Warren Doctors 104" face with frames.
60 Warren Doctors—various sizes.

CALENDER ROLLS
30 rolls various sizes

CALENDER STACKS
2—2 roll Holyoke 30" face.

CONVERTING EQUIPMENT
1—Sanitary Napkin Machine. With motors and starters.
1—Bliss Double Head Stitcher.

COUCH ROLLS
2—19" diameter x 92" face—brass covered.
2—29" diameter x 92" face—brass covered.

CREPING MACHINE
1—Complete Bagley & Sewall Creping Machine. Dryer 100" face x 48" diameter. Ball bearing equipped. Used 6 months.

CYLINDER MOLDS
5—Impco—84" face—40" diameter with stainless steel face wire
2—110" face x 30" dia.
4—84" face x 30" diameter.
1—84" x 30"—with ball bearing and cast iron end vats.

DANDY ROLLS
2—122" face 19" dia.
1—136" face 17" dia.
1—129" face 9½" dia.

DRYER DOCTORS
40—Warren Doctors. Various sizes.

DRYERS
30—48" Dia. x 40" Face, Chromium Plated.
2—24" Dia. x 40" Face.

ELECTRIC HOIST
1—Sprague Electric 3 ton hoist—5 h.p. 3 phase—60 cycle—110 volts.

FLAT SCREENS
2—Harmon 10 plate.
1—Sandy Hill 2 plate flat screen.

FOURDRINIER, SHAKES
1—Beloit Fourdrinier Shakes.
1—Sandy Hill Bertram Shake. Late type.

FOURDRINIER WET END
1—120" Beloit Fourdrinier Wet End.
1—74" Penny & Jones Wet End.

GRANITE ROLLS
2—112" face 29" diameter.

HAMMERMILLS
1—American Hammermill—37" anti friction bearing equipped
1—Williams 18" Hammermill Ball Bearing.

HOG
1—Mitts & Merrill Hog. Number 5232.

JORDANS
1—E. D. Jones Majestic Jordans.
1—E. D. Jones Imperial Jordans—belt driven.
1—Smith & Winchester 30 ton capacity—belt driven.

KNOTTERS
1—Wells Knotter.
2—Trimbey Knotters.

LINE SHAFT
1—Complete line shaft with pulleys and pillar block.

PLATERS
2—Holyoke 2 Roll 19" dia. 30" face.

PULLEYS
60—Cone Belt and Solid Cast Iron Pulleys. Various Sizes.

PULP EQUIPMENT
1—120" face Kamyr Press.
1—84" Sumner Disc Barker with motor
1—54" Carthage 4 knife chipper, 3 sets spare knives with one Waterville Hechipper.

PULPERS
1—Voith Pulper 20 tons cap.
1—Bird Pulper.

PUMPS
4—Ingersoll Rand 250 g.p.m. 1740 rpm 90' head —4" suction—3" discharge. Direct connected to 10 hp. General Electric 220-440 volt—3 phase—60 cycle motor.
4—Ingersoll Rand 500 g.p.m. 1745 r.p.m.—90' head—4" suction—3" discharge. Connected to 15 h.p. General Electric 220-440 volt—3 phase—60 cycle motor.
4—Worthington Pumps 10,000 g.p.m.—38' head. Requires 75 h.p. at 850 r.p.m.
1—DeLaval 6" x 6".
10—Warren Vertical Pumps. 6" suction. 3" discharge. 135 g.p.m. 90' head. Direct Connected 6 h.p. General Electric motor. 1750 r.p.m. 440 volts, 3 ph.-60 cycle, ball bearing.
1—Warren Close Coupled Centrifugal Pump. 3" suction. 2" discharge. 60 g.p.m. 90' head. 6 h.p. General Electric 1750 r.p.m. 440 volts, 3 ph-60 cycle, ball bearing.
3—Worthington 3" 2 stage. 200 g.p.m. 224' head. Bronze Ball Bearings.
1—Worthington 400 g.p.m. 35' head 1750 r.p.m. Ball bearing.
250 additional pumps in our warehouse—various sizes.
1—Gould Figure 3000—size 8-4" suction—3" discharge.
1—American Marsh 200 g.p.m.—50' head—3" suction 2½" discharge. Connected to 7½ h.p. G.E. motor—230 volts.
1—Pennsylvania 1000 g.p.m. 80' head—8" suction—6" discharge—Connected to 30 h.p. G.E.—220 v. 3 phase—60 cycle motor.
8—De Laval Verticals—540 g.p.m. 1740 r.p.m. —30' head 5" x 5". Direct connected to 7½ h.p. Allis Chalmers Motor. 440 volts—3 phase—60 cycle.
1—Buffalo 100 g.p.m. 15' head—4½" suction—2½" discharge. Direct connected to 2 h.p. Star Electric Motor. 440 volts—3 phase—60 cycle.

REFINERS
1—Weiner Refiner 24" with extended base for direct connection to motor.

ROLLS
40—Table, Dryer, Felt, Wire, Breast and Calender Rolls. Various Sizes.

ROTARY COOKER
1—Rotary Cooker—6' dia. x 21' long—complete with drive.

ROTARY SCREENS
2—#2 Bird with copper vats.
2—#1 Bird with steel vats, lead lined.
1—Moore & White.

RUBBER PRESS ROLLS
1—119" Face—19½" Diameter.
1—106" Face—17½" Diameter.
1—120" Face—19" Diameter.
1—118" Face—18" Diameter.
1—120" Face—18" Diameter.
1—107" Face—18" Diameter.
1—100" Face—18¼" Diameter.

SAVEALLS
1—A. D. Wood cylinder 48" dia. 90" face.

SCREW PRESS
1—Valley Iron Screw Press. Used 2 years.

SHEETERS
1—90" Hamblet Duplex.
1—90" Baker Stasio Knife heavy duty.
1—136" Hamblet Duplex.

SHREDDERS
3—54" Sprout Waldron heavy duty shredders—anti friction bearing equipped.
1—Taylor Stiles Portable Pulp Shredder—on wheels.
1—Rythor and Pringle Shredder.

SLITTERS AND WINDERS
1—62" Warren two drum—fully rebuilt.
1—41" Waldron Slitter and rewinder. Roll embossing attachment.

STEAM LOCOMOTIVES & WOODLAND EQUIPMENT
1—32 ton 36" gauge Shay-Lima locomotive. Air pressure 150 lbs. P.S.I. with a large lot of new spare parts.
1—40 ton 36" gauge Improved Climax Locomotive. Boiler pressure 150 lbs. P.S.I. with a large lot of new spare parts.
30—36" gauge wood cars. 40,000 lbs. log or pulpwood capacity. Used 4 months.
1—Sheffield motor car, manufactured by Fairbanks Morse—36" gauge—New.

SUPERCALENDER STACKS
1—9 roll Norwood 83" face. Bottom roll 24" diameter. Top roll 20" diameter.

TURBINES
1—Westinghouse 125 h.p. 125 steam pressure—15 back pressure. Complete. Used 1 year.

TURBINES—PAPER MACHINE DRIVE
2—General Electric Turbine Paper Machine Drive 250 h.p.—350 r.p.m. 125 lb. steam pressure. 30 lb back pressure.

UNWINDERS
1—42" John Waldron Unwinder. Used 1 year.

VACUUM PUMPS
2—14" x 20" Connersville.

WET MACHINES
3—Glens Falls 84" Wet Machines—cylinder mold 36" diameter with 18" rubber couches.

YANKEE DRYERS
2—Beloit 8' dia. x 175" face—75# working pressure.
1—Beloit 5' dia. x 194" face—75# working pressure.

THE ABOVE IS A PARTIAL LIST OF EQUIPMENT OFFERED FOR SALE.

NO CONNECTION WITH ANY OTHER FIRM OF SIMILAR NAME.

SITUATIONS WANTED

BAG MACHINE ADJUSTER—20 years' experience on flat and square, satchel bottom, coffee bags, cellophane, heat sealing machines and aniline printing. Wants change to position offering better opportunity. Middle west or west preferred, but not essential. Address Box 46-749 care Paper Trade Journal. O-31

FOR SALE

MACHINERY FOR SALE

2—Impco Pulp Screens of design No. 3.

2—Gould, size 8", double suction centrifugal pumps mounted on baseplates but without motors. These pumps are Fig. 3450, rated 1900 GPM at 25 ft. head and require a 15 HP 1200 RPM motor. One pump is new and one pump is slightly used but in good condition.

3—Saranac Oyster-pail machines, hopper feed.

2—Saranac Butter-dish machines, hopper feed.

STEVENS & THOMPSON PAPER COMPANY
Greenwich, New York
TF

FOR SALE

New brass covered felt or wire rolls 6½" dia., 84 to 128" face. These are made from government surplus and are new in all respects.

Osborne Paper Mill Equipment Co.
Fulton, N. Y. TF

BAG MACHINES FOR SALE

Number	Size Range	Type	Mfgr.
1	5#	Automatic	Weber
2	3#, 4#, 5#	Automatic	Weber
3	6#, 8#, 10#	Automatic	Weber
1	1# and 2#	Automatic	Weber
1	¼# and ½#	Automatic	Weber
2	12#, 14#, 16#	Automatic	Weber
1	3 x 5 up to 6¼ x 9¼	Flat & Square	Potdevin
1	6¼ x 9¼ up to and including 9 x 13	Flat & Square	Potdevin
1	6¼ x 9¼ up to and including 9 x 13	Flat & Square	Potdevin

Box No. 46-733 care Paper Trade Journal
O-24

FOR SALE

BREAKER BEATER

1—Dilts Bandless Roll 62" diameter x 54" face—70 tons daily capacity. Equipped with Shartle Bros. Ragger.

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1—2000 lb. Horne iron tub new 1941, bandless roll 60 x 48
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1—110" Hamblet duplex sheet cutter
1—84" Clark with Moore & White layboy
1—Taylor Stiles rag cutter
2—No. 2 Daniels rag cutters
1—63" Smith & Winchester undercut ream cutter
1—115" Single knife Moore & White cutter and slitter, also layboy
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1—30 x 95" Black & Clawson
1—30 x 74" Impco
3—Apmew filters, mould 50 x 100"
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6—Beloit 14 & 63 teeth
7" face C D mortise gears
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1—8 ft. x 86"
2—8 ft. x 175"
1—6 ft. x 102"
1—5 ft. x 194" new 1939
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1—Devil
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1—Jones Leith Walk
2—12 plate Packer
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2—Mitts Merrill No. 15 CF direct cont. to 125 HP 440 volt motor
1—Carthage
Mitts Merrill type 14A F E S No. C 19026
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1—150" Moore & White four drum
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1—50" Cannard
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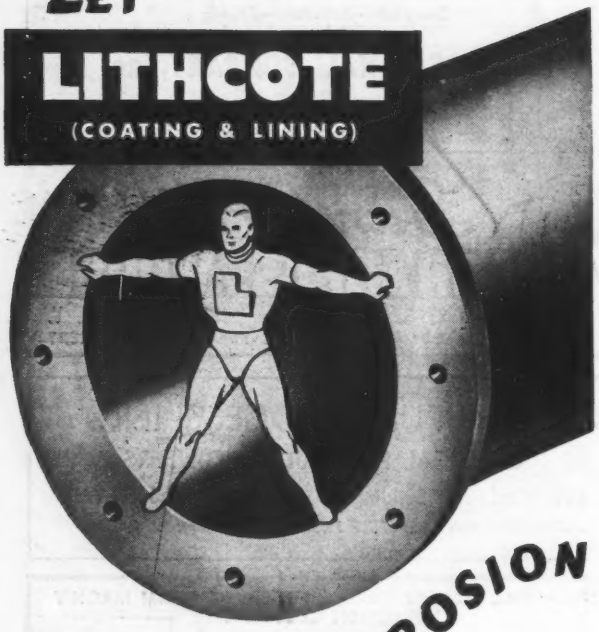

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WHERE TO BUY

ABRASIVES
Monsanto Chemical Co.
Norton Co.
Raybestos-Manhattan Inc. Manhattan Rubber Division

ADHESIVES
American Anode Incorporated
American Resinous Chemicals Corp.
Arabol Mfg. Co.
Casein Company of America
Flintkote Company
Kelco Company
Monsanto Chemical Co.
National Adhesives Division of National Starch Products, Inc.
Philadelphia Quartz Co.
Stein, Hall & Co., Inc.
United States Rubber Co.

AGITATORS
Appleton Machine Co.
Biggs Boiler Works Co.
Dilts Machine Works, Inc.
Dorr Company
Downingtown Mfg. Co.
Hardinge Co., Inc.
Improved Paper Machy. Corp.
E. D. Jones & Sons Co.
D. J. Murray Mfg. Co.
Montague Machine Co.
Moore & White Co.
Noble & Wood Machine Co.
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
Valley Iron Works Co.

AIR CONDITIONING
Spray Engrg. Company
Steamaire Company

ATOMIZERS
Steamaire Company

BAG MACHINES
Potdevin Machine Co.
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Weber, Herman G.

BALING MACHINES
Thomas W. Hall Co.

BARKERS AND CHIPPERS
Allis-Chalmers Mfg. Co.
Appleton Machine Co.
Carthage Machine Co.
Fibre Making Processes, Inc.
D. J. Murray Mfg. Co.
Valley Iron Works Co.

BARS
Dilts Machine Works, Inc.
E. D. Jones & Sons Co.
The Moore & White Co.
Noble & Wood Machine Co.
Shartle Brothers Machine Co.
Valley Iron Works Co.

BEARINGS
Black-Clawson Company
Jones, E. D., & Sons Co.
Magnus Metal Corp.
Montague Machine Works
Raybestos-Manhattan Inc. Manhattan Rubber Division
Rollway Bearing Co.
Shartle Brothers Machine Co.
SKF Industries, Inc.
Timken Roller Bearing Co.
Valley Iron Works Co.
T. B. Woods' Sons Company

BEATERS & JORDANS
The Appleton Machine Co.
Black-Clawson Company
Dilts Machine Works, Inc.
Downingtown Mfg. Co.
Hermann Mfg. Co.
E. D. Jones & Sons Co.
Noble & Wood Machine Co.
J. J. Ross Company
Ross Paper Machy. Co.
Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works

BED PLATES
Bahr Brothers Mfg. Co.
Dilts Machine Works, Inc.
Downingtown Mfg. Co.
Farrel-Birmingham Co., Inc.
E. D. Jones & Sons Co.
Noble & Wood Machine Co.
Shartle Brothers Machine Co.
Valley Iron Works Co.

BELTING
Alexander Brothers
Allis-Chalmers Mfg. Co.
The Cincinnati Rubber Mfg. Co.
Raybestos-Manhattan Inc. Manhattan Rubber Division
J. E. Rhoads & Sons
United States Rubber Co.
T. B. Wood's Sons Company
Worthington Pump & Machy. Corp.

BLEACHING BOILERS, ROTARY
The Biggs Boiler Wks. Co.

BLEACHING APPARATUS
The Biggs Boiler Works Co.
Improved Paper Machy. Corp.
E. D. Jones & Sons Co.
Perkins & Sons, Inc., B. F.
Moore & White Co.
Niagara Alkali Co.
Noble & Wood Machine Co.
Pennsylvania Salt Co.
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.

BLOW PIPES & PITS
Carthage Machine Co.
Montague Machine Co.
Moore & White Co.
Murray Mfg. Co., D. J.
Walworth Company

BOILERS
Babcock & Wilcox Co.
Biggs Boiler Works
Foster Wheeler Corp.

BOILERS (Electric)
Steamaire Company

BOTTOMS
Harrington & King Perforating Co.
Kalamazoo Tank & Silo Co.
Valley Iron Works Co.

CALENDERS
Black-Clawson Company
Downingtown Mfg. Co.
Farrel-Birmingham Co., Inc.
Lobdell Car Wheel Co.
Moore & White Co.
Perkins & Son, Inc., B. F.
J. J. Ross Company
Ross Paper Machy. Co.
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works
Waldron Corp., John

CASEIN
Casein Company of America

CASTINGS
Appleton Machine Co.
Black-Clawson Company
Carthage Machine Co.
Dilts Machine Works
Downingtown Mfg. Co.
Farrel-Birmingham Co.
Grinnell Company
Hamblet Machine Co.
Hardinge Co., Inc.
E. D. Jones & Sons Co.
Lobdell Car Wheel Co.
Magnus Metal Corp.
Montague Machine Co.
Noble & Wood Machine Co.
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Union Machine Company
Union Screen Plate Co.
Valley Iron Works Co.

WHERE TO BUY

Walworth Company

CENTRIFUGAL MACHINERY
Bird Machine Co.
De Laval Steam Turbine Co.
Nichols Engrg. & Research Corp.
Rose, J. O., Eng. Co.
Shartle Brothers Machine Co.
Williams Apparatus Co.

CHEMICALS
American Anode, Incorporated
Amer. Cyanamid & Chem. Corp.
Amer. Resinous Chemicals Corp.
Ansul Chemical Co.
Calco Chemical Co.
The Cowles Detergent Co.
Diamond Alkali Co.
Dispersion Process, Inc.
Dow Chemical Company
E. I. du Pont de Nemours & Co., Inc.
Folk Chemical Products Co.
General Dyestuff Corp.
Geigy Co., Inc.
Gottesman & Co.
Hooker Electrochemical Company
Kelco Company
Mallinckrodt Chemical Wks.
The Mathieson Alkali Works, Inc.
Monsanto Chemical Company
National Oil Products Co.
Nangatuck Chemical Div. of U. S. Rubber Co.
Niagara Alkali Company
Paper Makers Chemical Department, Hercules Powder Co.
Pennsylvania Salt Mfg. Co.
Philadelphia Quartz Co.
Pioneer Salt Company
Pittsburgh Plate Glass Co., Columbia Chemical Division
Solvay Sales Corp.
United States Rubber Co.
Witco Chemical Co.
Wyandotte Chemicals Corp.

CLEANING MATERIALS
Adell Chemical Company
Amer. Cyanamid & Chem. Corp.
Bird Machine Co.
The Cowles Detergent Co.
E. I. du Pont de Nemours & Co., Inc.
Paper Makers Chemical Department, Hercules Powder Co.
Magnus Chemical Co.
Monsanto Chemical Co.
Nichols Engrg. & Research Corp.
Oakite Products, Inc.
Pennsylvania Salt Mfg. Co.
Philadelphia Quartz Co.
Pittsburgh Plate Glass Co., Columbia Chemical Division
Solvay Sales Corp.
Wyandotte Chemicals Corp., J. B. Ford Division

CLUTCHES
Appleton Machine Co.
Black-Clawson Company
Hudson Sharp Machine Company
Farrel-Birmingham Co.
Fawick Airflex Co., Inc.
Hardinge Co., Inc.
Rodney Hunt Machine Co.
Moore & White Co.
D. J. Murray Mfg. Co.
The Sandy Hill Iron & Brass Wks.
Stearns Magnetic Mfg. Co.
T. B. Wood's Sons Company

COATING MACHINERY
Hudson Sharp Machine Company
Mayer Machine Co.
Moore & White Co.
Potdevin Machine Co.
Rotogravure Engrg. Co.
Shartle Brothers Machine Co.
South Wabash Engrg. Co.
Waldron Corporation, John
Weber, Herman G.

COCKS, LUBRICATED PLUGS
American Car & Foundry Co.

COMPRESSORS
Allis-Chalmers Mfg. Co.
De Laval Steam Turbine Co.
Ingersoll-Rand Co.
Nash Engineering Co.
Worthington Pump & Machy. Corp.

CONDENSERS
Foster Wheeler Corp.

CONSULTING ENGINEERS
Frederic C. Clark
Ferguson, Hardy S.
Hardy, George F.
Alvin H. Johnson & Co., Inc.
The Kohler System Company
Main, Inc., Chas. T.
The McPherson Company
Roderick O'Donaghue
The Rust Engrg. Co.
J. E. Sirrine & Co.
South Wabash Engrg. Co.
Stone & Webster Engrg. Corp.

CONTROLLERS
Black-Clawson Co.
Cochrane Corp.

CONTROLS
The Bristol Company
Cochrane Corp.
Stickle Steam Specialties Co.

CONVEYORS
Black-Clawson Company
Murray, D. J., Mfg. Co.
Ross Engineering Corp., J. O.

COOLING SYSTEMS
Foster Wheeler Corp.
Steamaire Company

CORES
Elixman Paper Co.
Rodney Hunt Machine Co.
Montague Machine Co.
Smith & Winchester Mfg. Co.
Sonoco Products Co.
Walker-Goulard-Plehn Co.

COUPLINGS
Black-Clawson Company
De Laval Steam Turbine Co.
Farrel-Birmingham Co., Inc.
Hardinge Co., Inc.
E. D. Jones & Sons Co.
Lovejoy Flexible Coupling Co.
Moore & White Co.
Noble & Wood Machine Co.
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
Valley Iron Works
Waldron Corp., John
Westinghouse Electric Corporation
T. B. Wood's Sons Company

CRANES
Northwest Engrg. Co.
Reading Chain & Block Company

CRUSHERS
Fibre Making Processes, Inc.

CUTTERS
Dilts Machine Works
Thomas W. Hall Co.
Noble & Wood Machine Co.
Perkins & Son, Inc., B. F.
The Smith & Winchester Mfg. Co.
South Wabash Engrg. Co.
Taylor Stiles & Co.

DAMPENERS
Perkins & Son, Inc., B. F.
Steamaire Company
Valley Iron Works Co.

DE-INKING
Adell Chemical Company
Dilts Machine Works
Hardinge Co., Inc.
Kinsley Chemical Co.
Shartle Bros. Mach. Co.

DIGESTERS
Biggs Boiler Works Co.
Foster Wheeler Corp.
Pusey & Jones Corp.

DOCTORS
Bird Machine Company

ACCURATE

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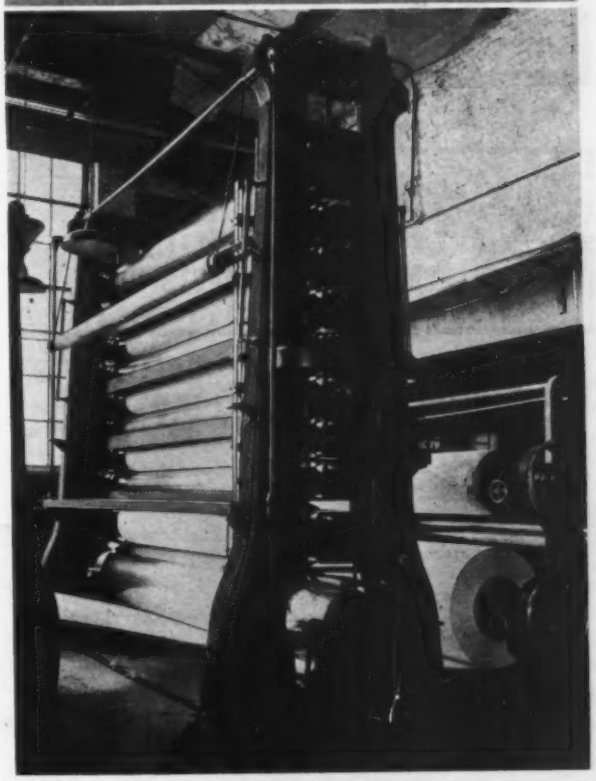

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FORGING HAMMERS

ESTABLISHED 1836
LOBDELL COMPANY

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ROLLS FOR ALL INDUSTRIES

WILMINGTON 99, DELAWARE

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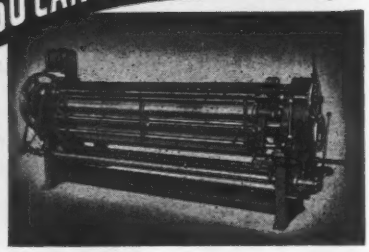

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Towel, Tissue, Napkin, Wax, Facial Tissue, Table Covers.

EMBOSSERS
1. Glassine. 2. Board. 3. Towel. 4. Tissue 5. Napkin. 6. Wrapping. 7. Special Purpose

WINDERS
Toilet, Towels, Crepe, Jumbo Roll.

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PAPER CONVERTING MACHINE CO.
GREEN BAY, WISCONSIN

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MATERIALS · METHODS · SERVICE · FOR EVERY CLEANING REQUIREMENT

WHERE TO BUY

Black-Clawson Company
Downingtown Mfg. Co.
Lobdell Co.
Lodding Engineering Corp.
Montague Machine Co.
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.

DOCTOR BLADES
Black-Clawson Company
Lodding Engrg. Corp.
Montague Machine Co.
Raybestos-Manhattan Inc. Manhattan Rubber Division
Rotogravure Engrg. Co.
The Sandy Hill Iron & Brass Wks.
Shartle Brothers
United States Rubber Co.
Westinghouse Electric Corporation

DRIERS
Black-Clawson Company
Murray Mfg. Co., D. J.
J. J. Ross Company
Ross Paper Machy. Co.
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
Valley Iron Works Co.

DRIVES
Allis-Chalmers Mfg. Co.
Appleton Machine Co.
Bird Machine Co.
Black-Clawson Company
Davis, Frank H., Co.
De Laval Steam Turbine Co.
Dilts Machine Works
Downingtown Mfg. Co.
Farrel-Birmingham Co.
General Electric Company
Rodney Hunt Machine Co.
Montague Machine Co.
Moore & White Co.
Murray, D. J., Mfg. Co.
Noble & Wood Machine Co.
Pusey & Jones Corp.
J. J. Ross Company
Ross Paper Machy. Co.
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
T. B. Wood's Sons Co.
Valley Iron Works Co.
Westinghouse Electric Corporation

DRUMS
Fibre Making Processes, Inc.

DRYER DRAINAGE
Stickle Steam Specialties Co.

DUSTERS
Appleton Machine Co.
Downingtown Mfg. Co.
Fibre Making Processes, Inc.
E. D. Jones & Son Co.
Moore & White Co.
Noble & Wood Machine Co.
Norwood Engrg. Co.
D. J. Murray Mfg. Co.

DYESTUFFS
Calco Chemical Co.
Ciba Company
E. I. du Pont de Nemours & Co., Inc.
Geigy Co., The
General Dyestuff Corp.
National Aniline Division, Allied Chemical & Dye Corp.
Paper Makers Chemical Department, Hercules Powder Co.
C. K. Williams & Co.
Witco Chemical Co.

EMBOSSING ROLLS
Northern Engraving & Mch. Co.
Roehlen Engraving Works

EVAPORATORS
Black-Clawson Company
Foster Wheeler Corp.
Goslin-Birmingham Mfg. Co., Inc.
Murray, D. J., Mfg. Co.
Swenson Evaporator Co., Div. of Whiting Corp.

FANS
General Electric Co.
B. F. Perkins & Son, Inc.
Ross Engineering Co., J. O.

FEEDERS
Fibre Making Processes, Inc.
Hardinge Co., Inc.
Merrick Scale Mfg. Co.
Leeds & Northrup
Wallace & Tiernan

FELTS
Appleton Woolen Mills
Asten-Hill Mfg. Co.
Bloomfield Woolen Co.
Bulkley, Dunton Pulp Co., Inc.
Draper Bros. Corp.
Huyck & Son, F. C.
Lockport Felt Co.
Mt. Vernon-Woodbury Mills, Inc.
Morey Paper Mill Supply Co.
Orr Felt & Blanket Co.
Shuler & Benninghofen
Waterbury Felt Co.
Waterbury, H., & Sons Co.

FELT CONDITIONERS
Steamaire Company

FELT GUIDES
Moore & White Co.
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
Waldron Corp., John

FILLERS
Aluminum Flake Co.
American Colloid Co.
Amer. Cyanamid & Chem. Corp.
Amer. Resinous Chemicals Corp.
Johns-Manville Sales Corp.
W. H. Loomis Talc Corp.
Vanderbilt Co., R. T.
Witco Chemical Co.

FILTERS
Cochrane Corp.
Hardinge Co., Inc.
Moore & White Co.
J. O. Ross Engrg. Corp.
Witco Chemical Co.
Worthington Pump & Machy. Corp.

FLOORING, GRATING & TREADS
Hendrick Mfg. Co.
Klemp Co., W. F.
Norton Co.
Raybestos-Manhattan Inc. Manhattan Rubber Division
United States Rubber Co.

FORMING MACHINES
Downingtown Mfg. Co.
Noble & Wood Machine Co.
Oliver United Filters
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
South Wabash Engrg. Co.

FRICTION MATERIALS
Johns-Manville Sales Corp.

FREENESS TESTERS
Testing Machines, Inc.
Williams Apparatus Co.

GEARS
Black-Clawson Company
De Laval Steam Turbine Co.
Downingtown Mfg. Co.
Farrel-Birmingham Co.
E. D. Jones & Sons Co.
Moore & White Co.
D. J. Murray Mfg. Co.
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.
Waldron Corp., John

GRINDERS
Carthage Machine Co.
Farrel-Birmingham Co.
Lobdell Car Wheel Co.
Montague Machine Co.
Norton Company
Samuel C. Rogers and Company
The Sandy Hill Iron & Brass Wks.

GRINDING WHEELS
The Manhattan Rubber Mfg. Div. of Raybestos-Manhattan, Inc.
Norton Company
United States Rubber Co.

HEAT EXCHANGERS
Foster Wheeler Corp.
Stickle Steam Specialties Co.

HEAT RECOVERY SYSTEMS
Foster Wheeler Corp.
Stickle Steam Specialties Co.

HEATING, VENTILATING AND AIR CONDITIONING
The Appleton Machine Co.
Armstrong Machine Works
Cochrane Corp.
E. D. Jones & Sons Co.
General Electric Co.
Grinnell Company
Leeds & Northrup
D. J. Murray Mfg. Co.
Noble & Wood Machine Co.
Ross Engineering Corp., J. O.
Shartle Brothers Machine Co.
Stickle Steam Specialties Co.
Valley Iron Works Co.
Worthington Pump & Machy. Corp.

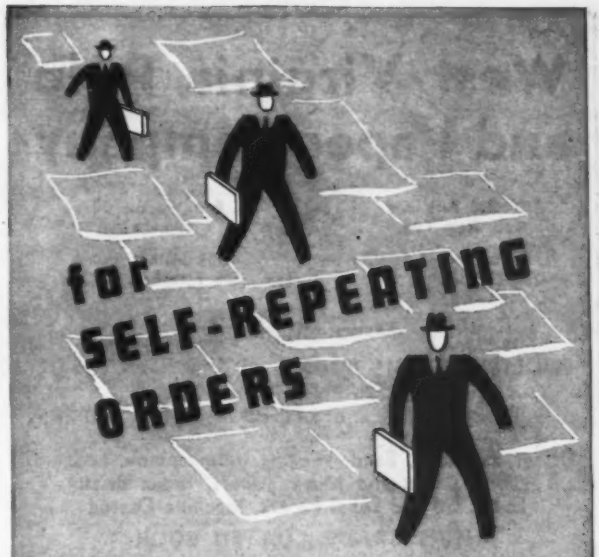
HOISTS
Appleton Machine Co.
Dilts Machine Works
Rodney Hunt Machine Co.
Ingersoll-Rand Co.
E. D. Jones & Sons Co.
Reading Chain & Block Corp.

HOSE (Air, Water, Suction, etc.)
The Cincinnati Rubber Mfg. Co.
Raybestos-Manhattan Inc. Manhattan Rubber Division
United States Rubber Co.

WHERE TO BUY

HUMIDITY CONTROL
Spray Engrg. Company
Steamaire Company
HYDRAPULPERS
Ross Paper Machy. Co.
INSTRUMENTS, TESTING AND MEASURING
Bauer Brothers Co.
E. P. Bowsher
The Bristol Company
Cochrane Corp.
The Foxboro Company
General Electric Company
W. & L. B. Gurley
Leeds & Northrup Company
National Technical Laboratories
B. F. Perkins & Son
Taber Instrument Corp.
Taylor Instrument Cos.
Testing Machines, Inc.
Wallace & Tiernan Instrument Co.
Williams Apparatus Co.
INSULATION
Johns-Manville Sales Corp.
JOINTS
Perfecting Service Company
JORDAN FILLINGS
Appleton Machine Co.
Bahr Brothers Mfg. Co.
E. D. Jones & Sons Co.
Noble & Wood Machine Co.
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.
KNIVES
Black-Clawson Company
Dilts Machine Works, Inc.
Hamblet Machine Co.
E. D. Jones & Sons Co.
Valley Iron Works Co.
KNOTTERS
Fibre Making Processes, Inc.
LABORATORY EQUIPMENT
Appleton Machine Co.
Bauer Brothers Co.
The Biggs Boiler Works Co.
W. H. & L. D. Betz
Dilts Machine Works
E. D. Jones & Sons Co.
Leeds & Northrup Company
National Technical Laboratories
Noble & Wood Machine Co.
Taber Instrument Co.
Taylor Instrument Companies
Testing Machines, Inc.
Valley Iron Works
Williams Apparatus Co.
LAY BOYS
Hamblet Machine Co.
Moore & White Co.
Shartle Brothers
LINTER COTTON
The Railway Supply & Mfg. Co.
LUBRICANTS
Gulf Oil Corporation
Gulf Refining Co.
Sinclair Refining Co.
Socony-Vacuum Oil Co., Inc.
Sun Oil Company
The Texas Company
Tide Water Associated Oil Co.
LUBRICATORS
Hills-McCanna Co.
MATERIAL HANDLING
Automatic Transportation Co.
Brooks Equipt. & Mfg. Co.
Northwest Engrg. Co.
Reading Chain & Block Company
MICROMETERS & CALIPERS
Farrel-Birmingham Co.
Montague Machine Co.
Lobdell Car Wheel Co.
Testing Machines, Inc.
Walker-Goulard-Plehn Co.
MOISTENING EQUIPMENT
The Spray Engineering Co.
Steamaire Company
MOISTURE CONTENT CONTROL
Spray Engrg. Company
Steamaire Company
Stickle Steam Specialties Co.
Williams Apparatus Co.
MOTORS AND GENERATORS
Allis-Chalmers Mfg. Co.
Continental Electric Co.
De Laval Steam Turbine Co.
General Electric Co.
Ingersoll-Rand Co.
Reliance Electric & Engrg. Co.
Westinghouse Electric Corporation
NOZZLES
Spray Engrg. Company
Steamaire Company
PACKING BOXES
Gibson Corporation
Shartle Brothers Machine Co.
PACKING
Johns-Manville Sales Corp.
The Manhattan Rubber Mfg. Div. of Raybestos-Manhattan, Inc.
United States Rubber Co.

PAPER MACHINES
Bagley & Sewall Co.
Black-Clawson Company
Downingtown Mfg. Co.
Thomas W. Hall Co.
Moore & White Co.
Pusey & Jones
J. J. Ross Company
Ross Paper Machy. Co.
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
PAPER MACHINE SLICES
Black-Clawson Company
E. D. Jones & Sons Co.
Montague Machine Co.
The Sandy Hill Iron & Brass Wks.
Valley Iron Works Co.
PAPER MILL BUILDERS
Merritt-Chapman & Scott Corp.
The Rust Engrg. Co.
PAPER TUBE MACHINERY
Theo. Adams
Dietz Machine Works
Thomas W. Hall Co.
Hudson Sharp Machine Company
Langston Co., Samuel M.
South Wabash Engrg. Co.
PASTING MACHINES
Black-Clawson Company
Davis, Frank H., Co.
Murray, D. J., Mfg. Co.
Moore & White Co.
Potdevin Machine Co.
Shartle Brothers Machine Co.
South Wabash Engrg. Co.
Waldron Corp., John
PENSTOCKS, WELDED STEEL
The Biggs Boiler Works Co.
PERFORATED METAL
Allis-Chalmers Mfg. Co.
Harrington & King Perforating Co.
Hendrick Mfg. Co.
PIPE
Black-Clawson Company
Crane Company
Deublin Company
Grinnell Company
Johns-Manville Sales Corp.
Shartle Brothers Machine Co.
Stowe-Woodward, Inc.
Taylor Forge & Pipe Works
Walworth Company
PLATERS
Perkins & Son, Inc., B. F.
PLATES
Black-Clawson Company
Hendrick Mfg. Co.
J. O. Ross Engrg. Corp.
Shartle Brothers Machine Co.
Timken Roller Bearing Co.
PLATE WORK (Steel & Alloy)
The Biggs Boiler Works Co.
PLUGS
Black-Clawson Company
E. D. Jones & Sons Co.
The Noble & Wood Machine Co.
Shartle Brothers Machine Co.
PRESSURE VESSELS, STEEL AND ALLOY
The Biggs Boiler Works Co.
Foster Wheeler Corp.
PRESSES
Black-Clawson Company
Dietz Machine Works
Farrel-Birmingham Co.
Fibre Making Processes, Inc.
Thomas W. Hall Co.
Hudson-Sharp Machine Co.
Paper Converting Machine Co., Inc.
Potdevin Machine Co.
Rotogravure Engineering Co.
Shartle Brothers
South Wabash Engrg. Co.
Valley Iron Works Co.
Waldron Corp., John
Weber, Herman G.
Williams Apparatus Co.
PULPERS
Bauer Brothers Co.
PULPS
Andersen Co., J.
Bulkley, Dunton Pulp Co., Inc.
Gottesman & Co., Inc.
Elof Hansson, Inc.
Lydden & Co. (America) Inc.
Parsons & Whittemore, Inc.
Perkins-Goodwin Co.
Price & Pierce, Ltd.
Pulp and Paper Trading Co.
PULPSTONES
Norton Company
PUMPS
Allis-Chalmers Mfg. Co.
Black-Clawson Company
Buffalo Pumps, Inc.
Dorr Company



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For sanitary protection and convenience . . . the original interfolded inner-wrap for meats — plus efficient Kabnet Wax dispenser service.

SAV-A-RAP

For bakeries, delicatessens, confectioneries, fountains and luncheonettes . . . . Sav-A-Rap comes in five convenient sizes of interfolded

COMPACT and TUX

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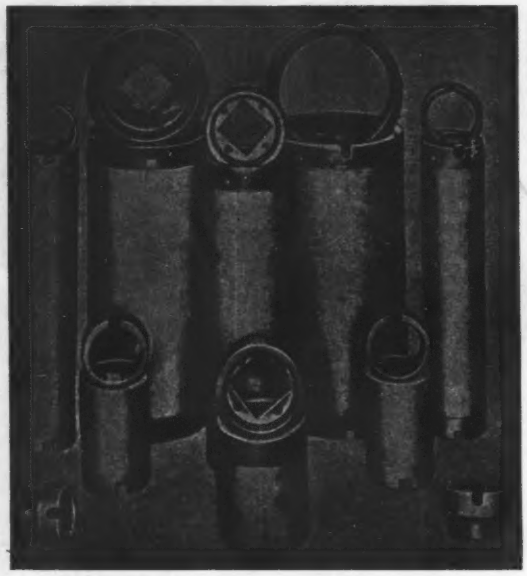

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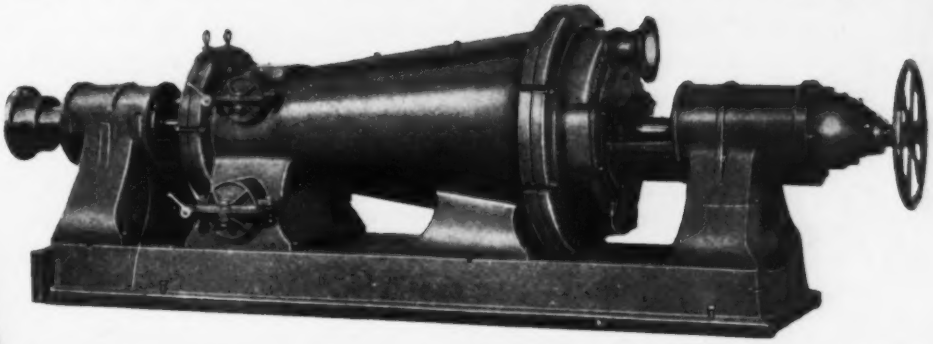

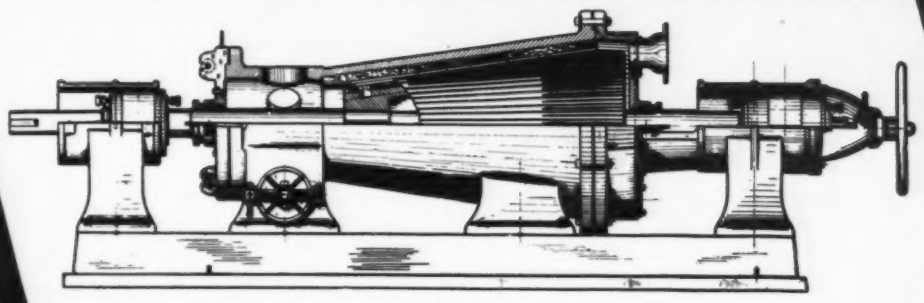

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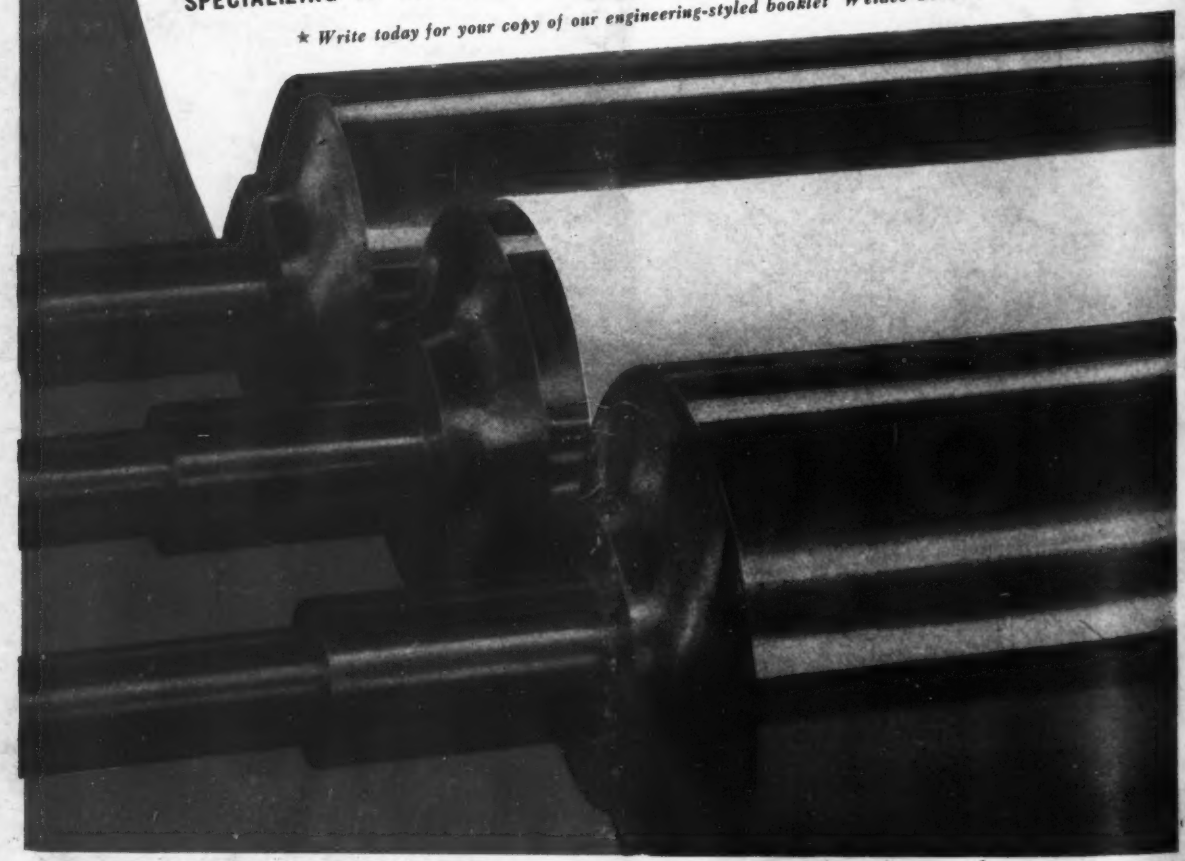

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